This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

NYPL RESEARCH LIBRARIES
3 3433 07598636 8

English
SSA

THE ENGLISH JOURNAL OF EDUCATION,

WITH WHICH IS INCORPORATED

"THE EDUCATIONAL EXPOSITOR."

MERCANTILE LIBRARY NEW YORK

51723

SPECIALLY DESIGNED AS A

Medium of Correspondence

AMONG THE

HEADS OF TRAINING COLLEGES, PAROCHIAL CLERGYMEN, AND ALL PROMOTERS OF SOUND EDUCATION, PARENTS, SPONSORS, SCHOOLMASTERS, PUPIL TEACHERS, SUNDAY-SCHOOL TEACHERS, ETC.

VOLUME X.——NEW SERIES.

LONDON:
GROOMBRIDGE & SONS, 5, PATERNOSTER ROW.

1856.

W. R.

DONATED BY
MERCANTILE LIBRARY ASSOC.
NEW YORK CITY

English
SSR

THE ENGLISH JOURNAL OF EDUCATION,

WITH WHICH IS INCORPORATED

"THE EDUCATIONAL EXPOSITOR."

MERCANTILE LIBRARY NEW YORK

51723

SPECIALLY DESIGNED AS A

Medium of Correspondence

AMONG THE

HEADS OF TRAINING COLLEGES, PAROCHIAL CLERGYMEN, AND ALL PROMOTERS OF SOUND EDUCATION, PARENTS, SPONSORS, SCHOOLMASTERS, PUPIL TEACHERS, SUNDAY-SCHOOL TEACHERS, ETC.

VOLUME X.——NEW SERIES.

LONDON:
GROOMBRIDGE & SONS, 5, PATERNOSTER ROW.

1856.

W. R.

DONATED BY THE MERCANTILE LIBRARY ASSOC. NEW YORK CITY

972822

LONDON:
PRINTED BY COX (BROS.) AND WYMAN, GREAT QUEEN STREET,
LINCOLN'S-INN FIELDS.

THE

English Journal of Education.

JANUARY, 1856.

A NEW SYSTEM OF DECIMAL WEIGHTS AND MEASURES.

OUR present system of weights and measures is a disgrace to a great scientific and commercial nation. In our weights and measures there is no fixed scale of notation: for example, 60 grains make a dram, 8 drams an ounce, 16 ounces a pound, 28 pounds a quarter, 112 pounds a hundred weight, and 20 hundred weight a ton; in liquid measures, 2 pints make a quart, 4 quarts a gallon, 2 gallons a peck, 4 pecks a bushel, and 8 bushels a quarter. We have even no uniformity in the use of any particular weight or measure: for example, the pound avoirdupois contains 7,000 grains, while the pound Troy contains only 5,760 grains. In different parts of England the stone contains from 8 to 16 pounds, while in the greater number of places, 14 pounds are taken to the stone; and so on to other cases. Our present scale of weights and measures also varies with the kind of substance to be weighed or measured; thus, we have our Troy weight, avoirdupois weight, and apothecaries' weight; thus, we have our long measure, cloth measure, land measure, liquid measure, dry measure, &c.; and these have rarely any fixed relation to one another.

A proper system of weights and measures should have the following characteristics:—

1. They should all have a fixed relation to one another.

2. There should be only one scale of weights, one scale of size, and one scale of capacity, without any distinction with respect to the substances weighed or measured.

3. They should not only have a certain relation to one another, but they should also have some known relation to a fixed standard, depending upon some invariable law of nature, so that if the government standard of any weight or measure should be lost, it might be restored by a reference to the law of nature upon which it is founded.

4. The system of weights, as well as the system of measures, should, in order to facilitate commercial calculation, be graduated according to a decimal scale.

5. With a view of disturbing the existing system as little as possible, any new system should take as its basis the most popular and best known units in the existing system.

The French system of weights and measures is one of the most perfect which has yet been adopted. A short account of this system will not,

we feel assured, be without interest to the people of this country, at a time when the legislature are about to introduce a new system of money, weights, and measures.

THE FRENCH SYSTEM OF WEIGHTS AND MEASURES.

The weights and measures are of different forms and names, according to the kind of magnitude to which they are applied. These magnitudes are as follow :—

Lengths from which lineal, or linear, measures are derived.

Superficies or areas.

Volumes or capacities, by which bodies, whether solid or liquid, are compared one with the other.

Weights by which the gravity of bodies is compared one with the other.

The unity of length, or lineal unity is called a MÈTRE.

The unity of surface is called an ARE.

The unity of volume is called a STÈRE or MÈTRE CUBE.

The unity of capacity is called a LITRE.

And the unity of weight is called a GRAMME.

In order to compare larger or smaller measures than these units, the following words (taken from the Greek and Latin languages) are used : viz., for quantities above the unit,—DÉCA, or tens ; HECTO, or hundreds ; KILO, or thousands ; and MYRIA, or ten thousands : and, for quantities below the unit,—DÉCI, or tenths ; CENTI, or hundredths ; MILLI, or thousandths.

The lineal measures are comprised in the following series :—MYRIAMÈTRE, KILOMÈTRE, HECTOMÈTRE, DÉCAMÈTRE, MÈTRE, DÉCIMÈTRE, CENTIMÈTRE, MILLIMÈTRE.

Each of these measures, in the order of the series, is ten times greater than that which follows it, and ten times less than that which immediately precedes it.

The LITRE is a measure of capacity, and contains a quantity equal to a DÉCIMÈTRE CUBE, or the tenth of a mètre cube.

The names of the measures of capacity are composed in the same manner as the lineal measure ; thus we have HECTOLITRE, DÉCALITRE, LITRE, DÉCILITRE, CENTILITRE, &c.

The weight of the GRAMME is equal to that of a CENTIMÈTRE CUBE, or the hundredth of a MÈTRE CUBE, of pure water. The MYRIAGRAMME, the KILOGRAMME, the HECTOGRAMME, the GRAMME, the DÉCIGRAMME, the CENTIGRAMME, &c., form the decimal series, in the same manner as the other measures.

The ARE is a measure of superficies, equal to a SQUARE DÉCAMÈTRE, or ten mètres square ; that is, to a square, the side of which is a décamètre, or to one hundred square mètres. There are only two multiples of the ARE in use, the one is the HECTARE, which is equal to TEN THOUSAND ARES.

The STÈRE, for wood used as fuel, is a MÈTRE CUBE. Lastly, the units of money are at present known by the names of FRANC, DÉCIME, CENTIME. The last is the tenth part of a décime, which is itself the tenth part of a franc.

The franc is composed of a piece of silver weighing five grammes, alloyed with $\frac{1}{10}$ of copper.

The following table exhibits this system of nomenclature, and the advantages to be derived from a uniformity in the scale of notations :—

TABLE OF THE FRENCH DECIMAL MEASURES.

PRINCIPAL MEASURES.				
Of Length.	Of Capacity.	Of Weight.	Agrarian.	For Billets.
Metre. (mè.)	Litre. (li.)	Gramme. (gr.)	Are. (ar.)	Stère. (st.)
Ten-millionth part of the distance from the Pole to the Equator.	A décimètre cube.	Weight of a centimètre cube of distilled water.	One hundred square mètres.	One mètre cube.

EXAMPLES OF THE COMPOUND NAMES TO EXPRESS DIFFERENT UNITIES OF MEASURES.

Myriamètre, a length of ten thousand mètres. *Kilogramme*, a weight of one thousand grammes. *Hectare*, an agrarian measure of one hundred ares. *Décalitre*, a measure of capacity, of ten litres. *Décimètre*, the tenth part of a mètre. *Centigramme*, the hundredth part of one gramme.

The unity of money is called a Franc.
The Franc is divided into ten *Décimes*, and the Décime into ten *Centimes*.

TABLE OF COMPARISON BETWEEN THE FRENCH AND ENGLISH WEIGHTS AND MEASURES.

A Mètre = 3·2808992 feet, or 39·3707 inches.
A Square Mètre = 10·764297 square feet.
A Litre = ·2200967 gallons imperial, or 1·7607736 pints.
A Kilogramme = 2·2054 lbs. avoirdupois, or 15437·8 grains.
A Gramme = 15·4378 grains.
An Are = ·024711 acres, or 119·60124 square yards.

SUGGESTIONS RELATIVE TO A NEW SYSTEM OF WEIGHTS AND MEASURES FOR THIS COUNTRY.

We should have only three measures, viz., a measure of length, a measure of capacity, and a measure of weight. Our present distinctions of dry and liquid measure, of Troy and avoirdupois weights, &c., should be abolished ; the measure for beer should belong to the same scale as the measure for corn or potatoes, &c. ; and all our measures should be graduated according to a decimal scale.

MEASURE OF LENGTH AND VOLUME.

The first thing to be done is to fix the unit of length ; upon this unit the units of capacity as well as of weight must be based.

I propose that our present foot should be adopted as the unit of length. All our most simple conceptions of distance and length are associated with the foot measure. Artificers of all kinds have their foot-

rules by their sides, and mark off all their sizes by it; the draper has his yard wand, or three feet measure; and the builder has his tape line graduated into units of feet. To change the foot, therefore, would not only disturb all our existing associations relative to length, size, and distance, but would introduce confusion into our present commercial transactions.

The foot is very nearly the 32,809,000th part of the distance between the pole and the equator, or it is the 3·2659th part of the length of a second's pendulum at London; so that, if the government standard of a foot should be lost, it might be readily restored.

The French mètre is the ten-millionth part of the distance from the pole to the equator, but the advantage that would be derived from this decimal scale of derivation would not, in my opinion, compensate for the evils that would arise from the alteration of our present unit of measure.

Taking the foot as our unit of length, the new scale of lengths would be as follows:—

The foot divided into ten equal parts would give us a TENTH, or a DÉCIFOOT, which might be taken as the new inch.

The foot divided into one hundred equal parts, or the new inch into ten equal parts, would give us a HUNDREDTH or a CENTIFOOT; and so on.

Ten feet would give us a TEN-FEET MEASURE, or a DÉCAFOOT. A hundred feet would give us a HUNDRED-FEET MEASURE, or a HECTOFOOT, which might be taken as the new chain. A thousand feet would give us a THOUSAND-FEET MEASURE, or a KILOFOOT; and so on.

A foot square gives us a unit of surface, which we might call an area; and a foot cube gives us a unit of volume, which we might call a cube.

MEASURE OF CAPACITY.

Having fixed the unit of length, the unit of capacity should be derived from the unity of length by some simple law of ratio. Of all our existing measures of capacity we seem to be most familiar with the pint. Now it happens that the volume of our half-pint is exactly the hundredth part of a cubic foot: for 16 half-pints, or our present imperial gallon, contain 10 pounds of distilled water, that is, a half-pint weighs 10 oz.; now a cubic foot of distilled water weighs 1,000 oz.; therefore the capacity of a cubic foot is 100 times that of a half-pint. Hence the HALF-PINT might be called a CENTICUBE, and the PINT might be called TWO CENTICUBES. According to this scale our new measures of capacity would be as follow:—

The MILLICUBE, or the thousandth part of a cubic foot, or the tenth part of our half-pint.

The CENTICUBE, or the hundredth part of a cubic foot, or our present half-pint.

The DÉCICUBE, or the tenth part of a cubic foot, or ten half-pints, which might be called the new pottle, or new half-gallon.

The CUBE, or a cubic foot, or one hundred half-pints, which might be called the new bushel.

The DÉCACUBE, or ten cubic feet, or one thousand half-pints, which might be called the new quarter, or the new hogshead. The present quarter contains 1,024 half-pints, and the present hogshead of wine 1,008.

The HECTOCUBE, or one hundred cubic feet, or ten thousand half-pints,

which might be called the new last; the present last contains 10,240 half-pints.

MEASURE OF WEIGHT.

The unit of weight, like the unit of capacity, should be derived from the unit of length by some simple law. There is no weight with which we are more familiar than the ounce. Now it happens that the ounce avoirdupois is exactly the thousandth part of the weight of a cubic foot of distilled water at a mean temperature, or 62°. This therefore affords us the means of recovering the standard ounce if it should be lost. Taking the ounce, therefore, as the standard of weight, our new measures of weights might be written as follow:

The CENTIDRAM, or the thousandth part of an ounce. This might be called the new grain.

The DÉCIDRAM, or the hundredth part of an ounce.

The NEW-DRAM, or the tenth part of an ounce.

The DÉCADRAM, or the present ounce.

The HECTODRAM, or ten ounces. This might be called the new lb.

The KILODRAM, or hundred ounces. And so on.

SCALES OF DEGREES.

When the change is made in our weights and measures, it is also desirable that our present scales of degrees should be altered. Nothing can be more arbitrary and inconvenient than our scales of degrees, especially the scale of degrees used in our thermometers.

The French scale of degrees is both uniform and philosophical. According to this scale, the quadrant of the circle is divided into one hundred equal parts, and each part is called a degree of the circle, or an angular degree. The freezing point of water on the thermometer is called zero, and the boiling point is called 100 degrees, so that between these points there are 100 equal divisions, each of which measures a degree of temperature. T. T.

SOLUTION OF ARITHMETICAL PUZZLES.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—I send you some proofs of curious properties of numbers, both according to the Binomial Theorem, and in a simpler form, so as to suit the capacity of some of the pupils, whom you may wish to explain this matter to.

There is an 8vo. volume—"Barlow's Theory of Number"—which contains many curious properties of numbers equally striking: *e. g.* if the sum of the digits, in the odd places of any number, be equal to the sum of the digits in the even places, the number is divisible by 11.

Thus, take $\dot{1}\ 5\ \dot{6}\ 4\ \dot{3}\ 5\ \dot{2}\ 2\ \dot{4}$.

Here, $1+6+3+2+4=16$: and $5+4+5+2=16$.

And the quotient, when divided by 11, is 14221384.

This may be shown by a similar kind of proof. The above number $=4+2\times10+2.10^2+5.10^3+3.10^4=4+2.(11-1)+2.(11-1)^2+5$

$.(11-1)^3$, &c., and, expanding by the Binomial Theorem $=4+2\times(11-1)+2.(11^2-2\times11+1)+5.(11^3-3\times11^2+3.11-1$, &c., every term of which will contain some multiple of 11, except the last, and that will be $+1$, or -1, alternately. Therefore, the number $=11\eta.\quad+4-2+2-5+3-4+6-5+1$. If, therefore, the positive and negative numbers exactly counterpoise each other, the number is divisible by 11.

SIMPLER PROOF.

Let the digits of the number be a, b, c, d, e, f,—a being in the place of units, b of tens, &c. then, the number=

$$a+10b+100c+1000d+10000e+100000f$$
$$=9\quad\overline{9+1}\times6+\overline{99+1}.c+\overline{999+1}.d+(9999+1).e+(99999+1)f$$
$$=a+b+c+d+e+f+9b+99c+999d+9999e+99999f.$$

Now, $9.b+99.c+999.d$, &c., is clearly divisible by 9, whatever the digits b, c, d, &c., be.

If therefore, $a+b+c$, &c., as the sum of the digits, be divisible by 9, the number itself is.—Q. E. D.

Cor. I. The number $=a+b+c+d+9b+99c$, &c.

$\therefore$ Taking away the sum of the digits $a+b+c$, &c., the number $=9b+99c$, &c., which is clearly divisible by 9.

Cor. II. If the digits of the first number be a, b, c, d, e, and f, the number whose digits are the same, but in a reverse order, will be f, e, d, c, b, a.

Or the first number=

$$a+b+c+d+e+f+9b+99c+999d+9999e+99999f.$$

And the second number=

$$f+e+d+c+b+a+9e+99d+999c+9999b+99999a.$$

$\therefore$ The difference between the two numbers=

$$99999f+9990e+900d-900c-9990b-99999a.$$

Every term of which is divisible by 9; so, therefore, the number itself is divisible by 9.

Example.—1798542, is a number whose sum of digits is divisible by 9; and therefore the number itself is.

The sum of the digits=36, which is divisible by 9. The number itself, divided by 9=199838.

Ex. of Cor. I. :—

Let the number be	52341
Subtract the sum of the digits	15
	9) 52326
	5814

Ex. of Cor. II. :—

754361
163457
9) 590904
65656

The number 123456789, multiplied by 9, is the same thing as if it were multiplied by $10-1$;

As, first multiplying by 10	1234567890
Subtracting	123456789

the number will manifestly have 1 in every place except the second; so, if the numbers, 12345, be taken, this multiplied by 9, will have 1 in every place except the two last, or 111105.

For, multiplied by 10, we get	123450
Subtracting	12345
	111105

This will obviously be an analogous result, with respect to any of the numbers consisting of any numbers of the digits, 1, 2, 3, &c., in regular order, except that which ends in 9, and the only reason for a difference in that case, is because 9×9 is the only simple multiple of 9, which has 1 in the unit's place.

PROOF BY BINOMIAL THEOREM.

A number is divisible by 9, when the sum of the digits is divisible by 9.

Let these digits be $a, b, c \cdots\cdots r, s, t$, taken from right to left.

Then the number $=a+10b+10^2c$, &c., $+10^{n-3}r+10^{n-2}s+10^{n-1}t$

$$=a+\overline{9+1}.b+\overline{9+1}^2.c, \text{ \&c.,} +\overline{9+1}^{n-3}.r+\overline{9+1}^{n-2}.s+\overline{9+1}^{n-1}.t.$$

Now if any of these binomials, as $\overline{9+1}^{n-3}$, be expanded by the Binomial Theorem, the factor 9 will enter into every term of the expansion except the last, and the last term will always be 1. The expanded term will, in fact be—

$$9^{n-3}+\overline{n-3}\times 9^{n-4}+\tfrac{n-3}{1}\times\tfrac{n-4}{2}.9^{n-5}, \text{ \&c., } +\overline{n-3}.9+1=9\,{}^{\prime}_{n-3}+1.$$

The number will therefore be of the form—

$$a+\overline{{}^{\prime}_{1}.9+1}.b+\overline{{}^{\prime}_{2}.9+1}.c, \text{ \&c., } +\overline{{}^{\prime}_{n-3}.9+1}.r+\overline{{}^{\prime}_{n-2}.9+1}.s+\overline{{}^{\prime}_{n-1}.9+1}.t$$

$$=a+b+c+\cdots+r+s+t+{}^{\prime}_{1}.9b+{}^{\prime}_{2}.9c, \text{ \&c., } +{}^{\prime}_{n-3}.9r, \text{ \&c.}$$

Let ${}^{\prime}_{1}.b+{}^{\prime}_{2}c+\cdots+{}^{\prime}_{n-3}.r+{}^{\prime}_{n-2}.s+{}^{\prime}_{n-1}.t=F.$

Then the number $=a+b+c+\cdots+r+s+t+9F.$

But $9F$ is clearly divisible by $9\,{}^{\prime}_{1}$, if $\therefore a+b+c\cdots+r+s+t-$ be divisible by 9, the whole number is.—Q. E. D.

COR. I. If from any number, the sum of its digits be subtracted, the remainder is divisible by 9.

For the number $=a+b+c$, &c. $\cdots\cdots+9\,F$.

Subtracting therefore $a+b+c$, &c., the remainder is $9F$, which is clearly divisible by 9.

COR. II. If from any number be subtracted that number whose digits are the same, but in a reverse order, the remainder will be divisible by 9.

For the first number $=a+b+c\cdots+r+s+t+9.F$.

But the second number $=t+s+r\cdots+c+b+a+9.\phi$.

The difference between the two numbers $=9F-9.\phi$, which is clearly divisible by 9. H.

INDUSTRIAL SCHOOLS.

EVERYTHING we read on the subject of industry in the Bible—the practical example set us by the life of Christ, and those whom he chose as his apostles, as well as the fourth commandment, enforce daily labour as the order and duty of human life.

It is clear that this labour may consist of head-work as well as hand-work; and many there are who benefit mankind far more by their brains than they could do by their hands. But God has so ordered it, that by far the greatest number of people must make themselves useful by the latter sort of work. Every one must employ the kind of talent God has given him to the utmost of his power, and he will fulfil his duty. They who keep their talents in a napkin, and, leading lives of idleness or pleasure, exert no power, either of body or mind, to the glory of God or the good of their fellow-men, are leading lives of sin. Thus, every working-man who follows his calling, and thereby supports his family, and adds to the general produce of the country, and every mother who trains her children and manages her household, however lowly may be their lot, are obeying one of the chief commands of God, and performing one of the "works" without which "faith is dead."

Labour-life is full of joys which the indolent know not, and riches cannot buy. It is well said, that "to labour and be content with what a man hath is a sweet life." It is a great mistake to regard bodily labour as an evil: it is the source of almost all worldly good. It tends to morality, contentment, and usefulness; it increases our means; and though it may not always bring riches, it secures to us the wealth of health. In this vital matter, bodily labour far excels mental labour, which, if it be in excess, injures health, and frequently prevents one of its great securities—exercise. Without this, there can be no due development of the muscles, nor can the limbs or body obtain their proper strength. This great truth is much lost sight of, as regards the young. A very great proportion of school-children live without regular bodily exercise. In the higher schools this want is, in great measure, supplied by cricket, rowing, and other manly sports and games; but in the common schools there are few such sports; for the children usually spend their leisure hours either in doing odd jobs at home or in desultory play, which exercises neither mind nor body. It is a rare thing to see hearty games among poor children whilst at school. When school-time ends, labour-life begins; and inasmuch as our present school-system defers all preparation for labour, education is shortened to make way for it, in order to increase the family income.

Thus a double evil results from a system which confines schooling to head-work. First, it fails to train and prepare the scholar for the bodily work of his future life, and neglects also the great aids which industry gives to moral as well as mental culture. Secondly, it not only lessens the effectiveness of education, but tempts the parents of the child to shorten its duration, and to make it incomplete.

If school-time were properly divided between head-work and bodily industry, these evils would be removed, or at least greatly lessened. Doubtless no system of industrial education for poor children could supersede the apprenticeship of labour-life by combining with needful education a sufficient training in any one craft, complete enough to secure

perfection in it. We do not attempt to make artists or skilled labourers of school-children, nor to perfect them in any of the branches of industry in which we hope to exercise them. In the first place, as three or four hours of the day must be always devoted to indoor-lessons, there will not be, within the usual limit of the school age, sufficient time or opportunity to teach a trade, or even to *perfect* a boy in the handy art of spade-husbandry. What, then, do we profess to do? Simply this: to give them an aptitude for labour, which school studies do not give; to aid such studies by the vigour which bodily health and strength impart to mental faculties; to accompany education in all useful knowledge taught in-doors (both secular and moral) by its practical application out of doors; thus bringing school-instruction home to the apprehension of the child as a reality, of which he feels the usefulness. The intelligent teacher will be at no loss to bring a fund of knowledge thus to bear on the common routine of industrial occupation. The precept of training a child in the way he should go had doubtless a comprehensive meaning, and comprised the whole duties of life, physical as well as bodily. Now, if, for the class in question, industry is a primary duty, it is a necessary part of the training meant by Solomon; and certain it is, that we cannot impart to a child the spirit of the labourer, without labour.

It is by such means that we hope to further the teaching and training requisite for successful labour-life, and, in so doing, very greatly to develop mental power and moral qualities. Not only is it found, that the energy of the body imparts itself to the mind, but that it also has a most useful effect in checking those high flights and wild shoots which are just now of too common growth in the instruction even of the best of our schools for the poor; and that the industrial element tends usefully to give predominance to common things, and its due value to what is plain, and practical, and useful, over what is abstract, showy, and useless. There is, moreover, great virtue in the practice of precepts. As regards moral conduct, this is just as needful and useful as with respect to bodily faculties. The school-room gives small scope for it. Very little opportunity for the development either of child virtues or child vices, or for the treatment of individual temperaments, occurs under the dynasty of its formal discipline. At the desk and in the class, the child is necessarily an artificial creature, and goes in grooves; and the outbreaks of his nature are fitful and exceptional. Place him in the work-ground, and give free play to his whole being, animal and moral, and his dispositions, as well as faculties, come out and declare themselves, so as to be easily trained, cherished, or checked, as occasion may require.

In carrying out industrial training care should be taken so to organize it that it be an integral part of the day's work, not a mere appendage, in which case it seldom answers.

TRUTH.—Truth will ever be unpalatable to those who are determined not to relinquish error, but can never give offence to the honest and well-meaning; for the plain-dealing remonstrances of a friend differ as widely from the rancour of an enemy, as the friendly probe of a surgeon from the dagger of an assassin.—*E. W. Montagu.*

ON THE STUDY OF THE ANGLO-SAXON LANGUAGE.

(*Continued from p.* 456.)

THE first historical event which led to any serious corruption of the English language, was the Norman conquest. William, Duke of Normandy, generally known as William the Conqueror, invaded England, A.D., 1066, and by the decisive battle of Hastings, routed the Saxons, and gained the English throne. By this event the Normans became, and continued to be, the governing race in England.

The policy of the Normans differed both from that of the Romans, and from that of the Saxons; and it was this difference of policy that caused such a difference in the effect upon the language. The Normans did not, like the Romans, merely send over an army to subjugate, but came over as a people to occupy. On the other hand, they did not, like the Saxons, exterminate the conquered, but sought to keep them on the soil as a subject and servile race. William divided the island among his followers, giving to each a portion of territory, and of the Saxon population which was upon it. In this manner, two races were diffused side by side over the surface of the island, and kept in constant juxtaposition. The effect of this continued contact between the two races, soon became apparent.

The Normans were superior to the conquered race in military skill, but were greatly inferior in numbers. They sought, therefore, to perpetuate their authority by depressing the social and political condition of the Saxons. They introduced Norman laws and customs. None but Normans were appointed to any important office, either in church or state. Above all, a strenous and persevering attempt was made to spread the Norman language throughout the island. No other language was spoken at court, or in camp, in parliament, in the baronial hall, or in the lady's boudoir. In this language the laws were written, and judicial proceedings were conducted. No civil contract was binding, no man could sue or be sued, no right could be enforced, and no favour won, except in the language of the governing race. The first step to every Saxon serf that wished to rise from his state of inferiority and servitude, was to forget his native language, and train his tongue to the accents of his foreign masters.

The laws of nature are stronger than the laws of man. The Normans attempted an impossibility. It is impossible for two races, especially if not separated by colour, to maintain permanently a separate existence, when kept in constant contact and juxtaposition, as were the Normans and the Saxons. A mingling of race was the inevitable result of this state of affairs. The Saxons gradually intermarried with the Normans, and rose to an equality of legal rights and social position. With the elevation of the race, the Saxon language resumed its rightful position. It had always been the language of the masses, while the Norman had been spoken only by the governing few. When two races become thus blended into one people, they cannot long continue to speak different languages. In this case, the Saxon, as being the language of the many, displaced the Norman, which was the language of the few, notwithstanding all the weight of authority and fashion that had been exerted in favour of the latter.

It would be a mistake, however, to suppose that no changes in the language occurred during this fiery ordeal. As there was a mingling of race, so there was to some extent a mingling of language. If we take a survey of the authors that wrote one or two centuries after the conquest, we find, not the pure Saxon of Alfred and Cædmon, nor yet the Norman parlance of William and his barons, but a mixed language, like the race, predominantly indeed Saxon, but with a large foreign ingredient. This mixed language is our modern English. Its main element is the Saxon. But it has another element, amounting to more than one third of the whole, the introduction of which is to be attributed to the Norman conquest.

But who were the Normans, and what was their language? The word "Norman," is a corruption of "Northman." The "Northmen" were the inhabitants of the ancient Scandinavia; that is, of Norway, Sweden, and Denmark. They were, in the ninth and tenth centuries, precisely what the Saxons had been in the fifth century. The Saxons, after their establishment in Great Britain, had been converted to Christianity, had acquired the arts of peace, and become comparatively civilized. The Northmen were still unlettered pagans, whose home was in their ships, and whose whole life was warfare. For the greater part of two centuries, they ravaged all the more civilized countries of Europe bordering upon the coast, until their very name become a terror. Rollo, a leader of one of those adventurous bands, penetrated into the very heart of France, and finally obliged the king to cede to him and his followers an entire province, amounting to no inconsiderable part of the kingdom. This province, thus ceded to the victorious Northmen, or Normans, was thenceforward called Normandy. The cession took place, A.D. 912.

Rollo and his followers were comparatively few in numbers. They gradually intermarried with their subjects in the province which had been assigned them, and adopted their manners, religion, and language. In less than a century after the advent of Rollo in France, his descendants in Normandy were, as to language, scarcely distinguishable from other Frenchmen. But the French language is that introduced into the province of Gaul by the Romans; it is, in short, a corrupt form of the Latin language. And the Norman-French is the same as other French, only with some northern or Scandinavian words, which the descendants of Rollo doubtless retained, after their settlement in Normandy.

The Norman-French, therefore, which William the Conqueror tried to introduce into England, was in the main a Latin language. He did not succeed in displacing our native Saxon. But he did succeed in introducing into it a large number of Norman-French words, and these Norman-French words, introduced into English at the Conquest, are generally words of Latin origin. These Latin words, thus introduced through the Norman-French, constitute the first important item in the Latin element of the language.

The importance of the Norman conquest, in its influence upon the language, is not to be estimated by the actual number of words then introduced. In point of fact, a much larger number of Latin words have been brought into the language since that time, and by other causes. The chief effect of the conquest in this respect, was its having

created the tendency to adopt foreign words. There is naturally, in all nations, a strong aversion to the adoption of foreign terms. The natural and spontaneous disposition, when a new word is wanted, is to make it out of roots or stems already existing in the language, and by modes of combination with which the popular ear is familiar. The terrible shock of the Conquest, and the wholesale use of foreign words to which the people then became accustomed, overcame this natural dislike, and opened a wide door for a continued influx of Latin words from a great variety of sources.

The extent of this influx may be estimated, if we call to mind that England, both from it position and from its national policy, has always maintained the closest commercial relations with the nations of southern Europe, and that these nations, the French, Spanish, Portuguese, and Italian, all speak languages that have descended directly from the Latin, and that have consequently the closest affinity and similarity with each other. The Norman conquest having brought a large number of Latin words into the language, and having opened wide the door for the introduction of more, by overcoming the national prejudice on the subject, and by making such foreign importations fashionable and popular, there has been, ever since, an uninterrupted stream of Latin words setting in upon us, like a tide that knows no ebb. Whenever, in the progress of commerce or of the arts, it became necessary to have new words for the expression of new wants, or new ideas, instead of making these new words by a process of home manufacture, we have resorted to the easy credit-system of borrowing them from our neighbours. Almost every musical term in the language has been taken from the Italian, many of our terms of etiquette and punctillio from the Spanish, and the entire nomenclature of cookery, dress, and fashion from the French, Italian singers and fiddlers, and Parisian cooks and milliners, have levied a tax upon our tongues no less than upon our purses. These foreign words, when first introduced, usually appear in a foreign dress. They are printed in italics, or with quotation marks, or in some way to indicate that they are foreigners, and not intitled to the full rights of citizenship. But in a few years, the popular ear gets accustomed to the lingo, the popular lip learns to sound it trippingly, it becomes a part of staple English!

But there is another source ,from which Latin words have been brought into the language, even more prolific than that from mixture of race and national intercourse. I refer to learning and education. From an early period in English history, even before the time of the Conquest, learning was confined almost entirely to ecclesiastics. They were all necessarily instructed in the Latin language, because in that language all their church services had to be conducted. Besides this, the Latin language then was, and indeed until comparatively modern times it continued to be, the general language of scientific and literary men throughout Europe. Every treatise intended for general dissemination was written in Latin as a matter of course. It was the only medium by which an author could make himself known to those for whom alone books were then intended; viz., the learned few. In addition to this, it has been for more than a thousand years, and it still is, the settled practice, that the study of the Latin shall form an integral and leading

part in every course of education. All educated men, of whatever profession, have been, as a matter of course, Latin scholars. The language of Cicero and Virgil has been as familiar to Englishmen of education, as that of Chaucer and Spenser. Indeed, as to a critical knowledge, either of authors or of language, Englishmen have been far more proficient in the Latin, than in their native English. The mother tongue has been left to take its chance in the nursery and the play-ground, while Latin has been interwoven with every element of their intellectual cultivation.

The effect of such a system must be obvious. The wall of partition between native words and foreign having been broken down by the Norman conqnest, scholars have completed what warriors, traders, and artists began. Hence the strange anomaly, that, with us, learned men have been the chief corruptors of the language. The Germans, and other Teutonic nations, have been, perhaps, as much addicted to the cultivation of classical scholarship, as we have. But with them the national instinct has never been readily blunted, and has resisted, with a great measure of success, the Latinizing tendency which has so marked all classical studies with us. Our scholars have found, not only no resistance, but every facility which the established habits of the people could afford, for the introduction of Latin words. Out of this abundance of their hearts, therefore, they have freely spoken. Steeped from boyhood in the diction of the most polished nations of antiquity, they have but followed a natural impulse, when they have used "dictionary" for "word-book," "science" for "knowledge," "fraternal" for "brotherly" "maternal" for "motherly," "paternal" for "fatherly," "felicity" for "happiness," and so on, to an extent which may be already counted by tens of thousands, and which is constantly increasing.

If, now, from a review of the whole subject, the question be asked, what are the main elements of the English language, the answer will be obvious. There are, indeed, as we have seen, a few old Celtic words, which have come down to us directly from the ancient Britons. Among the thousands of words, also, that have come to us from France, Spain, and perhaps Italy, there are doubtless some few of Celtic origin, because the original population of all those countries was Celtic, before they were overrun by the Romans. We have also some few Scandinavian words introduced by the Danes during their invasions of England in the ninth and tenth centuries. There, are too, no doubt, not a few Scandinavian words brought by the "Northmen" into France, and thence by their descendants, the Normans, into England after the conquest. We have, also, as every nation has, occasional words derived from every country, no matter how remote, with which we have had commercial intercourse, or with whose literature our soldiers have been conversant; *e. g.*

TARIFF—Tarifa, a town near the Straits of Gibraltar, where duties on goods were formerly collected.

TAMARIND—Heb. Tamar + *ind*-us.

DAMASK, DAMASCENE, } Damascus.

SPANIEL.—Hispaniola, the place whence this species of dog was derived.

RATAN.—A Malay word.

But all these together are few and inconsiderable, in comparison with

the whole number of our words, and they do not affect its organic character. The overwhelming majority of our words are still of two classes. They are either Saxon or Latin. These are the two main elements which constitute the language.

No mention has been made thus far of *Greek* words, of which we have a large number in the language. The omission has been intentional, and for the purpose of simplifying the historical survey of the subject. The Greek language is so nearly allied to the Latin, that in a discussion like this, they may be considered as one. It is only necessary to remark, that very few Greek words have been introduced by mixture of race or by commercial intercourse, The Greek words which we have, have been introduced almost entirely by selections and books. Nearly all of them are scientific terms. Indeed, nine-tenths of all the scientific terms that we have are Greek.

Of the relative numbers of these two classes of words (Saxon and Latin), it is impossible to speak with certainty. If we exclude all compound and obsolete words, and all words introduced by the arts and sciences during the last hundred years, the ratio of Anglo-Saxon words to the whole body of the language, would probably be about five-eighths. If we examine, however, the page of any ordinary English book, the Saxon words will be found to bear even a larger preponderance than this. The reason is, that all the small connecting words, the articles, pronouns, prepositions, conjunctions, and most of the adverbs, are Saxon. These small words occur at least ten times as often as any other class of words in the language; *e. g.* "wickedness," which is Saxon, perhaps may not occur more frequently than "malice," which is Latin. But "the" will be found a hundred times where either of them will be found once. Again, some writers are noted for their partiality to the Latin vocables, others for their partiality to the Saxon. But taking the average of different writers, and excluding works of science, in which, sometimes, the words are almost entirely Latin and Greek, I suppose that the Saxon and the Latin words on any page of ordinary English will be found as five, perhaps as six, to one.

The Latin words that have found their way into the English, may be again divided into two well-defined classes, viz., those that have come to us by national intercourse and admixture, and those that have come through learned men and education. The former have come from languages that are not pure Latin, but are the modern representatives and descendants of that tongue; viz., the French, Spanish, Portuguese, and Italian. The others have come from the fountain head, the Latin itself. Words of the former class are all more or less corrupted, either in those modern languages in which the English found them, or in the transition from those languages into the English. Words of the latter class, taken from the Latin directly, are changed very little, or not at all.

The difference between these two classes can be best illustrated by a few examples. It exists mainly in the stem, or root, of the word. Both classes are obliged to conform to the English idiom as to the termination. But in the stem, while those coming from the Latin directly are with little or no change, those from the other languages, particularly those from the French, are almost invariably changed in the spelling:—

Latin Stems.	Words coming from the Latin directly.	Words coming from the French, or some other modern descendant of the Latin.
Curs-us	curs-ive	course.
Cur(r)o	cur(r)ent	cour-ier.
Reg-is.....	reg-al	roy-al.
Fruct-us	fruct-ify	fruit-.
Fragil-is.....	fragil-e	frail-.
Pung-ens	pung-ent	poign-ant.
Punct-um	punct-ual	point-.
Recept-um	recept-acle	receipt-.
Decept-um	decept-ion	deceit-.
Diurn-us.....	diurn-al	journ-al.

It is the common opinion, that the language has deteriorated in consequence of this multitude of foreign admixtures. Some purists in style have gone so far as to recommend and attempt an entire disuse of words of Latin origin, to put upon them the ban of public odium, and to stigmatize them as intruders and foreigners. It cannot be doubted, indeed, that many writers have carried to a ridiculous extent their partiality for the Latin vocables. No writer, perhaps, has made himself more notorious in this respect than Dr. Johnson. No book in the language, on the contrary, is more free from this Latinism, or is in purer English in all respects, than the English translation of the Bible. You will find sometimes, in whole pages, scarcely one word in ten that is not pure Saxon. In the Lord's prayer, for instance, the only Latin words are *debts, debtors, deliver, temptation,* and *glory.* Among the writers who come nearest to the translators of the English Bible, in the purity of their English, are Shakspeare and Addison. If, in any of these writers, we were to substitute for the Saxon words the corresponding Latin synonyms, we should instantly perceive a falling off in expressiveness. "Our Father, who art in Heaven," for instance, translated into Johnsonese, would be some such vapid trash as this,—"Paternal Being, who existest in the celestial regions!"

That part of the domain of English letters in which words of Latin origin most abound, is in the field of science. With the exception of a few Arabic terms, almost our entire scientific nomenclature is derived from the Latin and the Greek, particularly from the latter. I suppose that at least nine-tenths of our scientific terms are Greek. Geology, botany, mineralogy, grammar, logic, mathematics, physics, and metaphysics, are all in a state of utter dependence upon languages with which none but the learned are familiar. This has been, and it is, undoubtedly a hindrance to the communication of knowledge. To any one acquainted with the Greek and Latin, the terms used in the different sciences almost of themselves describe the objects to which they are applied, without further study. If, now, these terms, instead of being taken from a dead language, were drawn from the resources of the mother tongue, the very structure of the word would show its meaning even to the unlettered, and with the meaning of the word would be conveyed a knowledge of the thing.

When, for instance, the anatomist speaks of the "systole" and

"diastole" of the heart, he talks Greek. He must consequently explain himself. He must give, in different words, a description of the thing meant, and after you have learned from these other sources the nature of the subject, you infer vaguely what must be the meaning of the words. Now, suppose the anatomist had been called to explain the same point to a native Greek; the words themselves convey the idea which is meant, and nothing more is necessary to convey this idea, even to an unlettered man, than a mere enunciation of the terms. To a native Greek, systole and diastole, apogee and perigee, hydraulics, hydronamics, clepsydra, chreosote, isomeric, isomorphic, metamorphic, and all the other thousands upon thousands of scientific terms, which so puzzle the mere English student, are just as intelligible and expressive in themselves, as to the native Englishmen are our homespun compounds, inkstand, pen-handle, note-book, sunrise, woodland, hill-top, cornfield, snow-flake, pitchfork, daylight, forenoon, afternoon, and so on to any extent. I cannot doubt, therefore, if the terms of science had been from the first, and throughout, carefully elaborated out of our own native materials, the difficulties in the communication of science would have been much lessened.

(*To be continued.*)

LOCAL WORDS.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

DEAR SIR,—I am much obliged for your kindness in forwarding to me two numbers of THE ENGLISH JOURNAL OF EDUCATION. The notice, which you have kindly inserted in one of these numbers, of my *English Past and Present*, will, I doubt not, be of material service in getting it into the hands of teachers,—a class whom, above all, I desire it should reach. I hope, also, hereafter to profit by the suggestion which you have made—a very valuable one, as it seems to me—that your readers should forward to you lists of local words and local usages.—Believe me, yours very faithful and obliged, H. C. TRENCH.

Ichenstoke, Alresford, November 28th, 1855.

[We again earnestly invite clergymen and teachers to abet this wish, and aid this useful collection.—ED. E. J. E.]

HOW TO PRESERVE OUR BEST INHERITANCE OF THE PURITY OF FAITH. —"By restraining the wrath of man, forbearing threatening, striving to show them in all our conduct the more excellent way of charity: by remembering and feeling the exceeding evil of those sore divisions which have now, for so many years, disgraced and weakened Christendom:.....by striving to remove, so far as may be, all the angry feelings, mutual misunderstandings, and hard judgments, which widen our present separation, and yet by maintaining, with this longing for unity, a spirit of unswerving truth;.....and lastly, by evermore watching, lest, in our zeal for truth on one side, we be led haply to undervalue it on the other."—*Sermon on the Principles of the English Reformation, by the Bishop of Oxford.*

MARTIAL.

A WRITER in a recent number of this Journal well observes, that he should like to see Catullus more appreciated in English schools, and accordingly he wishes for "a good expurgated edition of the poet, with notes, for school use." If we value the Roman writers according to their antiquity, *i.e.* if we desire to study the Latin language in its more truly Italian and less Grecised forms of expression, we shall naturally have recourse to Catullus, Lucretius, Terence, and Plautus; and indeed it is to be regretted that the older poets should be so much neglected, not only in the majority of schools, but also, we fear, in the universities. Catullus appears to have been held in the highest esteem by the Romans themselves of a later period; and, though his works are defiled by much that is coarse and indecorous, there is a freshness and an originality about his style, and a tenderness and prettiness in some of his minor pieces, which has caused them to be ranked among the best productions of the Roman muse. His elegiac verses are, however, rough almost to uncouthness, and are certainly very inferior in rhythm and elegance to the later writers, Tibullus, Propertius, and Ovid.

There is another, though among the latest, of the Roman poets, whose brilliant wit, pointed and terse style, and generally exquisite versification, are but too little known among ordinary students of the Latin language. We allude to Martial, an excellent and critical edition of whose works has rather recently appeared in Germany.* What Aristophanes was to Greek literature, that was Marcus Valerius Martialis to the Romans. A native of Spain, he lived as late as the reigns of Claudius, Nero, and their imperial successors, as far as Nerva. At once a poet, a satirist, a servile flatterer, and an unblushing sensualist, he combines the bad with the good in a degree which renders *expurgation* imperatively necessary for school purposes. But selections might be made, and ought to be made, for there is no writer, not excepting Juvenal, from whom so exact a knowledge of Roman life, manners, and customs is to be derived, and certainly there is none who carried elegiac versification, considered as an art, to such consummate excellence. Indeed, one might venture to say, that as regards *cleverness*, Martial is the very first of the Roman poets; and he moreover exhibits in a remarkable degree the versatility of the Latin language for expressing every kind of theme, from the minutest details of a Roman dinner-table to the highest standard of pathos and sentiment. No one of taste can rise from the pages of Martial without admiration, albeit there is but too graphic and naked a description of Roman depravity in many of his epigrams. It is one thing to expose viciousness, and another thing to take pleasure in it; and it cannot be denied that Martial was one of the latter class. However, an instructive and fascinating little book might easily be compiled for schools, containing some of the best gems picked from his miscellaneous poems. Let the reader say, if he knows anything surpassing the elegance of two little epigrams, on the insects inclosed in amber (lib. iv., ep. 32 and 59):

---

* F. G. Schneidewin. 1842. London: Black & Armstrong.

Et latet et lucet Phaëthontide condita gutta,
Ut videatur apis nectare clausa suo.
Dignum tantorum pretium tulit illa laborum ;
Credibile est ipsam sic voluisse mori.

On the same :—

Flentibus Heliadum ramis dum vipera serpit,
Fluxit in obstantem succina gemma feram ;
Quæ dum miratur pingui se rore teneri,
Concreto riguit vincta tepente gelu.
Ne tibi regali placeas, Cleopatra, sepulcro,
Vipera si tumulo nobiliore jacet.

And there is an equally pretty one in lib. vi. 15.

With what interest, too, do we read the lines of one who was an eye-witness of the devastation made by the first great eruption of Vesuvius, in the year after Christ 79. Strabo, who wrote not long before, had spoken of the mountain as environed by most beautiful fields, but cindery in its aspect, "so that," he says,* one might conjecture that the place was the scene of a great conflagration, and had fire-craters, which have since been extinguished by the deficiency of the feeding matter :" Thus then Martial (iv. 44) :

Hic est pampineis viridis modo Vesbius umbris,
Presserat hic madidos nobilis uva lacus.
Hæc juga quam Nysæ colles plus Bacchus amavit,
Hoc nuper Satyri monte deders choros.
Hæc Veneris sedes, Lacedæmone gratior illi,
Hic locus Herculeo numine clarus erat.
Cuncta jacent flammis et tristi mersa favilla ;
Nec Superi vellent hoc licuisse sibi.

Which we may venture to render as follows :—

Vesuvius this, so late with vineyards green,
Where choicest grapes in teeming vats were seen.
These hills did Bacchus more than Nysa love ;
Here lively Satyrs to the dance did move ;
Venus this seat preferred to Spartan shrine ;
Alcides here made all the place divine.
Now sprent with ashes, seared with blasting fire !
E'en angry gods ne'er knew such vengeance dire.

There is a very touching epigram (ii. 66) on a poor slave cruelly struck by her mistress for a trifling fault in dressing her hair. It shows Martial to have been a man of humanity, and superior to the common views of the Romans on the subject of slavery :—

One single curl beyond its bounds had strayed ;
The wandering hair-pin one false loop had made.
This fault to Lalage her mirror shows
Plecusa's head receives its stunning blows.
Cease, Lalage ; to deck thy brows, forbear ;
Cease, maidens, cease to dress that Fury's hair.

---

* Lib. v. cap. iv.

Let scissors clip, or asps among it sit,
Then, then her face that mirror shall befit.

The following has an elegant simplicity (v. 42) :—

Callidus effracta nummos fur auferet arca,
Prosternet patrios impia flamma lares ;
Debitor usuram pariter sortemque negabit,
Non reddet sterilis semina jacta seges.
Dispensatorem fallax spoliabit amica,
Mercibus extructas obruet unda rates.
Extra fortunam est, siquid donatur amicis :
Quas dederis, solas semper habebis opes.

Your slave will with your gold abscond,
The fire your home lay low,
Your debtor will disown his bond,
Your farm no crops bestow.
Your steward a mistress frail shall cheat,
Your freighted ship the storms will beat ;
That only from mischance you'll save,
Which to your friends is given ;
The only wealth you'll always have
Is what you've lent to heaven.

There is at once a fine pathos and a keen satire in the following (v. 37) ; written on the untimely death of a fair *verna*, or slave-girl, in the poet's family. The sincere grief for one in the humblest station is contrasted with the "mockery of woe" which a hypocrite assumes on *getting rid* of a wealthy wife :—

More charming than the swan with plumage grey,
Softer than lambkin from Tarentum's stream,
More dainty than the shell from Lucrine bay,
More glowing than the eastern gem's bright gleam ;
Whose skin new ivory's whiteness made to cease,
Or freshest snows that lily-leaves emboss ;
Whose locks more silky were than Spanish fleece,
Than Rhenish top-knots or the ermine's gloss ;
Whose breath the Pæstan roses' scent exhaled,
Or Attic honey from the comb run bright :
To vie with which, rubbed amber's fragrance failed,
With whom compared the peacock was a fright,
The squirrel dull, the phœnix no rare sight,—
Yet warm Erotion from the pyre doth lie,
Whom the stern law of over-grasping fate,
Ere her sixth year had sped, did call to die,
My love, my sport, my only joy of late.
And Pætus bids me dry my useless tears ;
And while he beats his breast and rends his hair,
'To weep a slave,' he cries, 'too base appears ;
I've lost a *wife*, and yet to live I dare,
A woman rich, proud, famed, of noble race.'
O Pætus, Pætus, stoic that thou art,
Who takest her dowry with a solemn face,
And yet to live awhile canst find the heart !

The following piece of banter is exquisite in its way (xi. 18);

Lupus! a farm near town you gave to me;
A larger plot I in my window see;
Such scrap of earth a *farm* 'twere hard to prove,
Where one small rue-plant makes Diana's grove.
This, which a locust's wing might overlay!
Whose crops would feed an ant one single day!
This, which a folded rose-leaf might have crowned,
Where not a herb can any more be found
Than eastern scents or fragrant spices rare,
To please the palate or perfume the hair;
Where e'en a cucumber must crooked lie;
A snake to coil its tail would vainly try.
Such garden scarce one caterpillar feeds;
The willow-bed no second insect breeds;
The mole alone my farm does plough and dig;
No mushroom here can gape, no early fig
Nor smiling violet here has room to grow;
The devastated land a mouse lays low,
More dreaded by the owner than of yore
Was that huge beast the Calydonian boar.
Aloft my crops are carried in the straw,
Caught by the flying swallow's slender claw.
Priapus here can scarce find room to stand,
Though half his size, and reft of wooden brand.
One snailshell holds our yearly grain and more;
In one pitched nutshell all the wine we store.
Lupus! your kindness by one letter err'd;
To call such gift a *favour* was absurd:
Take back your farm; more grateful far to me
The *savour* that your kitchen yields, would be.

We must apologize for concluding with a sorry pun; but the play in the original between *pradium* and *prandium*, is not a whit better, if it be not two or three degrees worse.

One more extract (i. 109) and we have done. It is on a pet lapdog, and was probably composed in imitation of Catullus's well-known ode, "Passer deliciæ meæ puellæ."

Issa's more full of sport and wanton play
Than that pet sparrow by Catullus sung;
Issa's more pure and cleanly in her way
Than kisses from the amorous turtle's tongue.
Issa more winsome is than any girl
That ever yet entranced a lover's sight;
Issa's more precious than the Indian pearl;
Issa's my Publius's favourite and delight.
Her plaintive voice falls sad as one that weeps;
Her master's cares and woes alike she shares;
Softly reclined upon his neck she sleeps,
And scarce to sigh or draw her breath she dares.
When nature calls, she modestly obeys,
Nor on the counterpane one drop will shed;
But warns her lord and master with gentle foot, and prays

That he will raise and lift her from the bed.
So chaste is she, of contact so afraid,
She knows not Venus's rites, nor do we find
A husband worthy of such dainty maid
'Mong all the clamorous suitors of her kind.
Her, lest the day of fate should nothing leave,
In pictured form my Publius hath portrayed;
Where you so lifelike, Issa might perceive,
That not herself a better likeness made.
Issa together with her portrait lay,
Both real or both depicted you would say.

If there are two Roman writers who show forth imperial Rome in its living reality, its social habits, its morality, its luxury, its domestic relations; if there are any two who, in a remarkable manner, illustrate each other; if there are two of congenial talent, sentiment, and poetical aspirations; if, in fine, there are any two who must be studied together, not merely as friends and contemporaries, but as the only great poets of the silver age, those two are Juvenal and Martial. The former is much and diligently read in schools and colleges; we repeat, that the latter has not yet found his proper place in either.

ARITHMETICAL NOTES AND QUERIES.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—It has often struck me, while examining children in our elementary schools on arithmetic, that they might be familiarized with the principles and some of the more obvious applications of the higher rules while they are learning the simple and compound rules. Indeed it appears to me that the authors of all the works on arithmetic that have come under my notice, purposely keep the student in the dark concerning the more advanced rules, purely for the sake of classification; for a little reflection will show that, while professedly occupied solely with the simple and compound rules, they are unconsciously working proportion and fractions.

As your object is, less to explain and propagate existing methods of instruction, than to try to improve them by means of criticism, I have thought that you may, perhaps consider my Arithmetical Notes and Queries worthy of a place in your Journal. Should they also be fortunate enough to elicit the opinions of any of your readers who are engaged in education, both your purpose and my own will be fully answered.

First, then.—Why is the notation of decimals reserved for that peculiar section of arithmetic? Why should it not be taught together with the notation of integers? If they were two different systems, their separation would be reasonable, but they are precisely the same. They form an unbroken series, of which each term is ten times the value of its neighbour on the right, and one tenth of the value of its neighbour on the left. The former is its decuple, and the latter its decimal. The only reason why the notation of decimals appears to differ from that of

The following piece of banter is exquisite in its way (xi. 18);

Lupus! a farm near town you gave to me;
A larger plot I in my window see;
Such scrap of earth a *farm* 'twere hard to prove,
Where one small rue-plant makes Diana's grove.
This, which a locust's wing might overlay!
Whose crops would feed an ant one single day!
This, which a folded rose-leaf might have crowned,
Where not a herb can any more be found
Than eastern scents or fragrant spices rare,
To please the palate or perfume the hair;
Where e'en a cucumber must crooked lie;
A snake to coil its tail would vainly try.
Such garden scarce one caterpillar feeds;
The willow-bed no second insect breeds;
The mole alone my farm does plough and dig;
No mushroom here can gape, no early fig
Nor smiling violet here has room to grow;
The devastated land a mouse lays low,
More dreaded by the owner than of yore
Was that huge beast the Calydonian boar.
Aloft my crops are carried in the straw,
Caught by the flying swallow's slender claw.
Priapus here can scarce find room to stand,
Though half his size, and reft of wooden brand.
One snailshell holds our yearly grain and more;
In one pitched nutshell all the wine we store.
Lupus! your kindness by one letter err'd;
To call such gift a *favour* was absurd:
Take back your farm; more grateful far to me
The *savour* that your kitchen yields, would be.

We must apologize for concluding with a sorry pun; but the play in the original between *pradium* and *prandium*, is not a whit better, if it be not two or three degrees worse.

One more extract (i. 109) and we have done. It is on a pet lapdog, and was probably composed in imitation of Catullus's well-known ode, "Passer deliciæ meæ puellæ."

Issa's more full of sport and wanton play
Than that pet sparrow by Catullus sung;
Issa's more pure and cleanly in her way
Than kisses from the amorous turtle's tongue.
Issa more winsome is than any girl
That ever yet entranced a lover's sight;
Issa's more precious than the Indian pearl;
Issa's my Publius's favourite and delight.
Her plaintive voice falls sad as one that weeps;
Her master's cares and woes alike she shares;
Softly reclined upon his neck she sleeps,
And scarce to sigh or draw her breath she dares.
When nature calls, she modestly obeys,
Nor on the counterpane one drop will shed;
But warns her lord and master with gentle foot, and prays

That he will raise and lift her from the bed.
So chaste is she, of contact so afraid,
She knows not Venus's rites, nor do we find
A husband worthy of such dainty maid
'Mong all the clamorous suitors of her kind.
Her, lest the day of fate should nothing leave,
In pictured form my Publius hath portrayed;
Where you so lifelike, Issa might perceive,
That not herself a better likeness made.
Issa together with her portrait lay,
Both real or both depicted you would say.

If there are two Roman writers who show forth imperial Rome in its living reality, its social habits, its morality, its luxury, its domestic relations; if there are any two who, in a remarkable manner, illustrate each other; if there are two of congenial talent, sentiment, and poetical aspirations; if, in fine, there are any two who must be studied together, not merely as friends and contemporaries, but as the only great poets of the silver age, those two are Juvenal and Martial. The former is much and diligently read in schools and colleges; we repeat, that the latter has not yet found his proper place in either.

ARITHMETICAL NOTES AND QUERIES.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—It has often struck me, while examining children in our elementary schools on arithmetic, that they might be familiarized with the principles and some of the more obvious applications of the higher rules while they are learning the simple and compound rules. Indeed it appears to me that the authors of all the works on arithmetic that have come under my notice, purposely keep the student in the dark concerning the more advanced rules, purely for the sake of classification; for a little reflection will show that, while professedly occupied solely with the simple and compound rules, they are unconsciously working proportion and fractions.

As your object is, less to explain and propagate existing methods of instruction, than to try to improve them by means of criticism, I have thought that you may, perhaps consider my Arithmetical Notes and Queries worthy of a place in your Journal. Should they also be fortunate enough to elicit the opinions of any of your readers who are engaged in education, both your purpose and my own will be fully answered.

First, then.—Why is the notation of decimals reserved for that peculiar section of arithmetic? Why should it not be taught together with the notation of integers? If they were two different systems, their separation would be reasonable, but they are precisely the same. They form an unbroken series, of which each term is ten times the value of its neighbour on the right, and one tenth of the value of its neighbour on the left. The former is its decuple, and the latter its decimal. The only reason why the notation of decimals appears to differ from that of

integers is, that they are numerated in opposite directions. But this is only because, for obvious reasons, the unit is taken as the point of departure; and if the numeration of integers be taught as it ought to be, this will not occasion any difficulty. For the pupil should be taught to numerate from millions to units as well as from units to millions. Thus, in a number composed of integers and decimals, such as 4506·234, he would numerate from the thousands down to the thousandths. After a little practice all the strangeness of decimal numeration would disappear, and a child would not be more puzzled to read or note ·0005 than 50000. The perception of the analogy which exists between the two would, however, be greatly facilitated by placing the decimal point over the units, as follows, 500000005.

By this method of instruction a decimal would become as clear and familiar an idea as an ordinary number. Decimals should also be introduced among the examples in the simple rules, either alone or connected with integers.

In teaching division, however, it would be necessary to confine the decimals to dividends, on account of the difficulty of dividing by a decimal. This would be left for the special treatise on Decimals.

I would, secondly, inquire, why all the opportunities presented by simple division for giving a notion of ratio proportion and vulgar fractions should be thrown away, as they are in our books on arithmetic. When a boy has worked a sum in that rule, he might, surely, be informed that the quotient he has found is the *ratio* between the divisor and the dividend, and the idea of ratio might be explained to him. After that, two sums might be given out, resulting in the same quotient, and he might be made to observe that, in these sums, the ratio between the first divisor and the first dividend, and that between the second divisor and the second dividend, were the same; and he might be informed that, when this is the case, the four numbers in question are said to be in proportion. After the idea of proportion has been well explained, examples might be given for practice in finding the ratios, both on slates and mentally, in the latter of which exercises children very soon become expert. After a sum in division has been worked, the divisor and dividend might be multiplied by the same number, and the division worked over again with these products. It would then be shown that the quotient or ratio was unaltered, and the reason of it would be easily explained. The conclusion would then be drawn that, for the same reason, the quotient will not be altered if the divisor and dividend be *divided* by the same number. And in all the subsequent examples in this rule the pupil might be taught to find the common factors in the divisor and dividend, and strike them out before beginning the division.

With equal ease might a notion of vulgar fractions be conveyed by means of division. Give some examples in that rule in which the divisors progressively increase, the dividend remaining the same, till, in one case, they are equal. Show that the quotient, or ratio, between these two equal numbers is unity; that it is so in all similar cases; and that equality is but a particular case of proportion. I need not detail the method of of proving from this that, where the divisor is *greater* than the dividend, the quotient will be less than unity. That quotient is a fraction, and the pupil, acquainted with decimals, will easily find it by executing the division. A vulgar fraction will then be shown to be nothing but the

indication of a division to be performed, of which the quotient will be a decimal; and, conversely, the decimal will be shown to be capable of being represented in the form of a vulgar fraction, leaving for its denominator a power of ten. The pupil will consequently regard a vulgar fraction as only a particular case of division; and having been previously accustomed to simplify his divisions by getting rid of common factors, he will naturally simplify his fractions in the same manner. Having already learned that equality of ratio constitutes proportion, he will easily understand that, if two fractions give the same decimal for a quotient, their numerators and denominators are proportionals. The compound rules will also afford many opportunities of illustrating vulgar fractions, by treating shillings, pence, and farthings, as fractions of a pound. This forms a good exercise in mental arithmetic; for example: How many pence are there in a pound? How many twopences? How many threepences? &c. Then—What part of a pound is a penny? What part are two pence? What part are three pence? &c. Children can be taught to answer such questions in a very short time, and they derive a much more distinct idea of fractions from such exercises than from any other, as the value of money enters into their every-day thoughts and occupations.

Regard for your space has deterred me from developing these Notes and Queries, but your readers are mostly well able to fill up the outline which I have sketched. The great advantage of the method which I venture to propose over existing ones is, that the intellect of the pupil is trained from the very beginning for the comprehension of the higher rules. The present method does the very reverse. Numeration and notation are taught only upon whole numbers, and not a trace of the existence of decimals appears till the chapter specially devoted to that subject. The consequence of this is to produce such an intimate association between the ideas of numeration, and notation, and integers, that a considerable effort is required to realise the idea of the numeration and notation of decimals. The mind is trained to bend in one direction in the first part of arithmetic, and then suddenly bent in the opposite direction. This occasions a considerable resistance in all minds, and a total incapacity of change in many. This is, I am convinced, the reason why a decimal is something recondite and mysterious to many even highly-cultivated minds. If they had been from the very first accustomed to see figures on the right of the unit figure as well as on the left, and to numerate and note both indiscriminately, the special chapter on Decimals would only be the development of a familiar idea. Similarly, the chapters on Proportion and Vulgar Fractions would lose all their strangeness. They would be simply offshoots of Division. Every person who has reflected on the laws of the human understanding must be aware of the great advantage of giving one uniform direction to the scholar's mind, and not creating associations of ideas in his mind which must afterwards be destroyed.

I shall only add that I have tried these methods of teaching in schools of various degrees of proficiency, and have always found that the analogy of decimals and integers, and of fractions, and proportion, and division, were quickly apprehended by the children, and appeared to strike them as a new light. Yours, H. G. B.

TOPOGRAPHICAL NOMENCLATURE.

CELTIC.

I. Traces of Names :—

1. *Celts* (Celtæ, Κελται, Γαλάται), Galatian, Gaul, Gael, Caledonia, and Calet-es (a tribe of Belgic Gaul).
2. *Cymrÿ*, Cimbri (Κίμβροι), Cumberland, Cambria, Cimmerii, (Κιμμέριοι) and Crimea.
3. *Erin*, Er-se, and Ire-land. Compare this with the word Arii (the name of a German tribe who lived near the Sudetan Mountains).

" The name of the Arii," says Dr. W. Smith, " appears to contain the same root which we find in the names of many nations of the Indo-Germanic family ; and it is not improbable that all the different branches of the Indo-Germanic race may have originally been called by this name."

According to Herodotus (vii. 61, 62), the Medes were originally called Arii, and the Persians Artæi. These names are identical with the Sanscrit word Arya (which means 'honourable,' entitled to respect), by which, in the ancient writings of the Hindus, the followers of the Brahminical law are designated. (See Rosen, in " Quarterly Journal of Education," vol. ix. p. 336.) India proper is called, in the most ancient Sanscrit works, Arya-varta ('Holy-land'). The same name was retained in the provinces of Aria and Ariana (called in the Zend language, Aíryáne), whence the modern Persian name, Iran, is derived.

In the ancient Persian traditions, the Arii are celebrated as the most generous and heroic nation of the primitive ages, just as the Asae (a softened form of Arii?) occupy the most distinguished place in the northern mythology. (See F. V. Schlegel's " Philosophy of History.")

4. *Alben*, Albion (Alb-inn, white heights), and Albania.
5. *Prydain*, Britain and Bretagne.
6. *Picts*, Pict-avi, or Pictones, and Poictiers.
7. *Belgæ*, Fir-bolgs (men of Belgæ) and Belgium.
8. *Bibroci*, Berkshire.
9. *Cantii*, Kent.
10. *Catini*, Caithness.
11. *Cassi*, Caishow.
12. *Damnonii*, Devon.
13. *Durotriges*, Dorset.
14. *Iceni*, Ixworth.
15. *Selgovæ*, Solway.
16. *Ambiani*, Amiens.
17. *Arverni*, Auvergne.
18. *Boii*, Bohemia, Bavaria.
19. *Bituriges*, Bourges.
20. *Cadurci*, Cahors, Quercy.
21. *Caturiges*, Cottian, Chorges.
22. *Centrones*, Centron, Courtray.
23. *Elusates*, Euse.
24. *Helvetii*, Helvetia.
25. *Lemovices*, Limoges.
26. *Lepontinii*, Lepontine, Alps.
27. *Lexovii*, Lizieux.
28. *Lingones*, Langres.
29. *Namnetes*, Nantes.
30. *Norici*, Noric Alps.
31. *Parisii*, Paris.
32. *Rhedones*, Rennes.
33. *Rhemi*, Rheims.
34. *Scordisci*, Mount Scordus.
35. *Tigurines*, Zurich.
36. *Turones*, Tours, Rouen.
37. *Veneti*, Vienne, Vannes.

II. Traces of Celtic Names on the Continent of Europe :—

1. *Ab*, 'water ;' old Gaulish, *hab* (*ab-us*, the Humber), cognate with *ab* (Sanscrit), water ; *imber* (Lat.), a rain-storm ;

ὄμβρος (Gr.); *yŏm* (Hebrew), 'the sea;' *wav-e* (English).—Aube, river in France; Dan-ube (deep river); Dn-iepr (Dan-ap-ris).

2. *Ab-er* (*ab*, 'water;' *er*=*ver* in *inver*, a receptacle), 'the confluence of waters,' 'a port.'—Abervrach, in France.
3. *Ad* (Ir.), 'water.'—Addua.
4. *Alb*, 'high mountain.'—Alps, Albania.
5. *Ben, pen*, 'head,' 'summit.'—Apennines, Pennine Alps, Pindus.
6. *Bel, beal*, 'mouth of a river,' 'port.'—Boulogne.
7. *Boug*, 'bay', 'bog.'—Bug.
8. *Bulg, bol*, 'swelling.'—Volga.
9. *Cefn*, 'a ridge.'—Cevennes.
10. *Douin, dwyn*, 'deep;' compare δείνω, δέφω.—Don (Tanais); Dor-dogne; Danube; Dniestr (Danaster); Ar-dennes (the deep forest).
11. *Dwr*, 'water,' cognate with ὕδωρ (Gr.); dri-nk (Eng.).—Adour; Tyras; Dordogne; Dor-a; Durance; Thur; Douro.
12. *Dubh*, 'black;' *dobham, dovan*, 'boisterous;' cognate with δύω, 'to rage,' 'storm;' *dhu* (Sanscrit), 'to agitate.'—Doubs; Dove (England).
13. *Fynnon*, 'a lake in a mountain,' 'source of a river;' takes the form of *bin, vin; fons* (Lat.).—Lake Bienne, in Switzerland.
14. *Genau*, 'a mouth;' like *bala*.—Geneva.
15. *Gar, air*, 'roughness,' 'violence.'—Garonne; Arar; Aar.
16. *Inn, an*, 'water,' 'a wave;' *und-a* (Lat.).—Yonne; Inn (tributary of Danube); Inny (Ireland); Annan (Scotland).
17. *Kyle*, 'a strait.'—Calais.
18. *Llan*, 'cleared' or 'cultivated spot.'—Mi-lan.
19. *Llyn, linn*, 'a lake,' 'pool;' cognate with λίμνη, λιμὴν, and λῦμα.—Lake Lemanus.
20. *Pyren, pyrn, bern, brein, bryn*, 'a hill,' 'peak,' 'slope.' 'hill-side;' cognate with *brow* (Eng.).—Pyrenees; Brenner (Tyrol); Bernese Alps; Bern; Auvergne (Arverni=*ar*, upon, and *vern*, hills).
21. *Rhe, ra*, 'a running,' 'motion;' cognate with ῥέω, and *rain* (Eng.).—Rha (Volga). *Rhodwydd*, 'an open course' (ῥεῖθρον, 'a stream').—Rhone (Rhodanus); Eridanus (Po); Rhine, Roden, Rother, Ree, Rye (England); Lake Ryan (Ireland).
22. *Tre, tref, athref*, 'family,' people,' 'tribe.'—Treves.
23. *Umna, afon, amnis* (Lat.), 'a river;' *umna* is an old form perhaps.—Gar-umna (Garonne); Clit-umnus.
24. *Wysc, uisge, esk, ax, exe*, 'water.'—Oise; Aisne (Ax-ona); Iser; Isere.
25. *Ys-dwr*, 'water' (*dwr* signifies motion, as well as water; and *ysdwr* may signify the same as *strom*, 'violent motion'); cognate with 'stream' and 'storm.'—Ister (Stour); Dniestr.

TOPOGRAPHICAL NOMENCLATURE.

CELTIC.

I. Traces of Names :—

1. *Celts* (Celtæ, Κελται, Γαλάται), Galatian, Gaul, Gael, Caledonia, and Calet-es (a tribe of Belgic Gaul).
2. *Cymrÿ*, Cimbri (Κίμβροι), Cumberland, Cambria, Cimmerii, (Κιμμέριοι) and Crimea.
3. *Erin*, Er-se, and Ire-land. Compare this with the word Arii (the name of a German tribe who lived near the Sudetan Mountains).

"The name of the Arii," says Dr. W. Smith, "appears to contain the same root which we find in the names of many nations of the Indo-Germanic family ; and it is not improbable that all the different branches of the Indo-Germanic race may have originally been called by this name."

According to Herodotus (vii. 61, 62), the Medes were originally called Arii, and the Persians Artæi. These names are identical with the Sanscrit word Arya (which means 'honourable,' entitled to respect), by which, in the ancient writings of the Hindus, the followers of the Brahminical law are designated. (See Rosen, in "Quarterly Journal of Education," vol. ix. p. 336.) India proper is called, in the most ancient Sanscrit works, Arya-varta ('Holy-land'). The same name was retained in the provinces of Aria and Ariana (called in the Zend language, Aíryáne), whence the modern Persian name, Iran, is derived.

In the ancient Persian traditions, the Arii are celebrated as the most generous and heroic nation of the primitive ages, just as the Asae (a softened form of Arii?) occupy the most distinguished place in the northern mythology. (See F. V. Schlegel's "Philosophy of History.")

4. *Alben*, Albion (Alb-inn, white heights), and Albania.
5. *Prydain*, Britain and Bretagne.
6. *Picts*, Pict-avi, or Pictones, and Poictiers.
7. *Belgæ*, Fir-bolgs (men of Belgæ) and Belgium.
8. *Bibroci*, Berkshire.
9. *Cantii*, Kent.
10. *Catini*, Caithness.
11. *Cassi*, Caishow.
12. *Damnonii*, Devon.
13. *Durotriges*, Dorset.
14. *Iceni*, Ixworth.
15. *Selgovæ*, Solway.
16. *Ambiani*, Amiens.
17. *Arverni*, Auvergne.
18. *Boii*, Bohemia, Bavaria.
19. *Bituriges*, Bourges.
20. *Cadurci*, Cahors, Quercy.
21. *Caturiges*, Cottian, Chorges.
22. *Centrones*, Centron, Courtray.
23. *Elusates*, Euse.
24. *Helvetii*, Helvetia.
25. *Lemovices*, Limoges.
26. *Lepontinii*, Lepontine, Alps.
27. *Lexovii*, Lizieux.
28. *Lingones*, Langres.
29. *Namnetes*, Nantes.
30. *Norici*, Noric Alps.
31. *Parisii*, Paris.
32. *Rhedones*, Rennes.
33. *Rhemi*, Rheims.
34. *Scordisci*, Mount Scordus.
35. *Tigurines*, Zurich.
36. *Turones*, Tours, Rouen.
37. *Veneti*, Vienne, Vannes.

II. Traces of Celtic Names on the Continent of Europe :—

1. *Ab*, 'water;' old Gaulish, *hab* (*ab-us*, the Humber), cognate with *ab* (Sanscrit), water; *imber* (Lat.), a rain-storm;

ὄμβρος (Gr.); *yŏm* (Hebrew), 'the sea;' *wav-e* (English).—Aube, river in France; Dan-ube (deep river); Dn-iepr (Dan-ap-ris).

2. *Ab-er* (*ab*, 'water;' *er*=*ver* in *inver*, a receptacle), 'the confluence of waters,' 'a port.'—Abervrach, in France.
3. *Ad* (Ir.), 'water.'—Addua.
4. *Alb*, 'high mountain.'—Alps, Albania.
5. *Ben*, *pen*, 'head,' 'summit.'—Apennines, Pennine Alps, Pindus.
6. *Bel*, *beal*, 'mouth of a river,' 'port.'—Boulogne.
7. *Boug*, 'bay', 'bog.'—Bug.
8. *Bulg*, *bol*, 'swelling.'—Volga.
9. *Cefn*, 'a ridge.'—Cevennes.
10. *Douin*, *dwyn*, 'deep;' compare δείνω, δέφω.—Don (Tanais); Dor-dogne; Danube; Dniestr (Danaster); Ar-dennes (the deep forest).
11. *Dwr*, 'water,' cognate with ὕδωρ (Gr.); dri-nk (Eng.).—Adour; Tyras; Dordogne; Dor-a; Durance; Thur; Douro.
12. *Dubh*, 'black;' *dobham*, *dovan*, 'boisterous;' cognate with δύω, 'to rage,' 'storm;' *dhu* (Sanscrit), 'to agitate.'—Doubs; Dove (England).
13. *Fynnon*, 'a lake in a mountain,' 'source of a river;' takes the form of *bin*, *vin*; *fons* (Lat.).—Lake Bienne, in Switzerland.
14. *Genau*, 'a mouth;' like *bala*.—Geneva.
15. *Gar*, *air*, 'roughness,' 'violence.'—Garonne; Arar; Aar.
16. *Inn*, *an*, 'water,' 'a wave;' *und-a* (Lat.).—Yonne; Inn (tributary of Danube); Inny (Ireland); Annan (Scotland).
17. *Kyle*, 'a strait.'—Calais.
18. *Llan*, 'cleared' or 'cultivated spot.'—Mi-lan.
19. *Llyn*, *linn*, 'a lake,' 'pool;' cognate with λίμνη, λιμὴν, and λῦμα.—Lake Lemanus.
20. *Pyren*, *pyrn*, *bern*, *brein*, *bryn*, 'a hill,' 'peak,' 'slope.' 'hill-side;' cognate with *brow* (Eng.).—Pyrenees; Brenner (Tyrol); Bernese Alps; Bern; Auvergne (Arverni=*ar*, upon, and *vern*, hills).
21. *Rhe*, *ra*, 'a running,' 'motion;' cognate with ῥέω, and *rain* (Eng.).—Rha (Volga). *Rhodwydd*, 'an open course' (ῥεῖθρον, 'a stream').—Rhone (Rhodanus); Eridanus (Po); Rhine, Roden, Rother, Ree, Rye (England); Lake Ryan (Ireland).
22. *Tre*, *tref*, *athref*, 'family,' people,' 'tribe.'—Treves.
23. *Umna*, *afon*, *amnis* (Lat.), 'a river;' *umna* is an old form perhaps.—Gar-umna (Garonne); Clit-umnus.
24. *Wysc*, *uisge*, *esk*, *ax*, *exe*, 'water.'—Oise; Aisne (Ax-ona); Iser; Isere.
25. *Ys-dwr*, 'water' (*dwr* signifies motion, as well as water; and *ysdwr* may signify the same as *strom*, 'violent motion'); cognate with 'stream' and 'storm.'—Ister (Stour); Dniestr.

VOCABULARY FOR THE EXPLANATION OF CELTIC NAMES.

I.—Words signifying water :—

Aber, confluence of waters, a port. (Br.)
Afon, aven, abon, a stream, river. (Br.)
Aer, a violent stream. (Br.)
Air, a bright clear stream. (Br.)
Alain, alwen, a clear white stream. (Br.)
Ath, a ford, passage. (Ir.)
Au, ea, ey, water. (Br.)
Aweddur, running water. (Br.)
Baan, ban, a white stream. (Ir.)
Bala, the issue of a river from a lake. (Br.)
Bel, beal, boul, bol, a port, entrance of a river, a fording-place. (Ir.)
Bran, a stream rising in a mountain. (Br.)
Boy (*boidhe*), a yellow stream. (Ir.)
Bun, the end or mouth of a river. (Ir.)
Cain, a clear stream. (Br.)
Cam, cambus, the bend of a river. (Cel.)
Carog, a brook. (Br.)
Clawdd, a ditch, fence. (Br.)
Clydog, clydawg, a sheltered river. (Br.)
Clyd, ditto. (Br.)
Clud, ditto. (Ir.)
Coire, cuire, a hollow ravine. (Gael.)
Cors, a bog, a marsh. (Br.)
Cuan, a haven. (Ir.)
Cymmer, confluence of rivers. (Br.)
Dee, die, a dark stream. (Cel.)
Dobham, dovan, a boisterous stream. (Ir.)
Du, dhu, dubh, a dark stream. (Cel.)
Dwr, dour, dur, water. (Br.)
Dwyn, douin, a deep stream. (Br.)
Dyfr, water. (Br.)
Dyffryn, the course of waters. (Br.)
Eden, eddain, a gliding stream. (Br.)
Erch, a turbid stream. (Br.)
Esk, water, stream. (Cel.)
Fford, a way, ford, passage. (Br.)
Ffynnon, a well. (Br.)
Figen, fign, migen, mign, a bog, mire. (Br.)
Forth, porth, a haven, port. (Br.)
Genau, a mouth, passage of a river from a lake. (Br.)
Glann, the bank of a river. (Br.)
Glas, glase, a blue stream. (Br.)
Gwy, a stream. (Br.)
Hynt, a way, a course. (Br.)
Inn, water. (Ir.)
In-ver, mouth of a river. (Cel.)
Ken, a clear stream. (Cel.)
Kyle, an arm of the sea. (Cel.)
Lleven, a smooth gentle stream. (Cel.)

Lin, linn, llyn, lyun, a deep pool, lake. (Cel.)
Llaith, lluyd, mud, moisture. (Cel.)
Llith, luth, lid, a flood, a gushing rapid river. (Cel.)
Llyr, the sea-shore. (Br.)
Lloch, lough, a lake, inland water. (Cel.)
Lo, water. (Ir.)
Mai, myai, an agitated turbid stream. (Br.)
Monde, a mouth. (Br.)
Moor, muir, mouth of river. (Br.)
Nant, a brook, river. (Br.)
Ned, nid, neithy, a white stream. (Br.)
Pistyll, a waterfall. (Br.)
Pwll, a pit, pool, ditch. (Br.)
Pydew, a pit. (Br.)
Rhaydr, a cataract. (Br.)
Rhodwydd, an open course. (Br.)
Rhos, a bog, marsh. (Br.)
Rhudd, ruddy. (Br.)
Rhyd, a ford. (Br.)
Rhydd, a free open course. (Br.)
Strom, a rapid impetuous stream. (Cel.)
Teviot, a gentle stream. (Br.)
Traeth, draeth, an estuary. (Cel.)
Ta, tan, water spreading, expanding. (Cel.)
Tain, tyne, a flood, river, running water. (Cel.)
Tra, traigh, a strand. (Ir.)
Ull, ul, moisture, water. (Cel.)
Uisge, uise, isc, oich, usk, uisk, water, river. (Cel.)
Wath, a ford. (Cel.)
Weem, a cave, bay. (Cel.)
Witham, ythan, a stream. (Br.)
Wyl, flowing, gushing out. (Br.)
Ybed, moist, to drink. (Br.)

(*To be continued.*)

EVIL OF NEGLECTING THE DULL CHILDREN IN SCHOOLS.—One practical evil of the most serious kind results from the mistake to which I am referring. You are tempted to give to the intelligent boys of your school more than their fair share of your time and attention, while the dull and slow are neglected, as not likely to contribute to the credit of the school and its master. * * * Yet the dull boy, who lags at the bottom of his class, *may* possess germs of the highest promise, languishing for want of patient and intelligent culture. * * * *

The pains which you honestly bestow on the dull boys of your school, though they may fail to obtain praise of men (and yet a wise inspector will *not* fail to notice them), will surely be appreciated by the only infallible Judge of every man's work.—*Lecture on Moral Influence, by S. A. Pears, B.D.*

HINTS FOR SCRIPTURE LESSONS.—No. 1.

ST. MATTHEW xviii. 10—35.

Take heed that ye despise not one of these little ones (v. 10).—Amplify on this universality of God's care: little ones may be taken as lowly ones (who have come to Christ, for it has reference to vv. 2, 3), and does not merely mean children, which unduly restricts the sense. Question on parallel passages and other Scripture proofs of Christ's condescending love and pity towards the humblest. The latter part of this verse seems to say that the highest angels watch over the humblest men. The Jewish belief is herein apparently supported,—that each good man had his attendant angel.—(See Bloomfield on this.)

All that are lost (v. 11).—Shows the universality of redeeming grace. (See also v. 14.) It introduces the especial solicitude of God for the most erring.

Goeth into the mountains (v. 12).—This solicitude is likened to the anxiety of the shepherd after his one lost sheep. Here dilate and digress on habits of shepherds, and especially in mountainous countries, where the danger is peculiarly great, and the effort to recover the stray sheep proportionate. Just so ought we to go abroad to reclaim sinners: and this verse is often quoted in aiding missionary efforts.

He rejoiceth more of that sheep (v. 13).—This shows that the duties of Christianity and God's sympathies assimilate with ours.

It is not the will of my Father that one of these little ones should perish (v. 14).—Cite parallel passages: Epistle gen. of St. John ii. 2; Rev. xxii. 17, &c. &c. Deduce and show sin of uncharitableness and Phariseeism.

Go and tell him his fault between thee and him alone.—Convince him of it: for so the word ἔλεγξον means. Much may be made of this. It unfolds great Christianity, and the only way of meeting offences. (See also St. Luke xvii. 3: "Rebuke him.") This is in order to repentance. It is obvious from this, that silent forgiveness is not the forgiveness enjoined by God; but the effort to convince and reclaim is not to be ostentatious or public; for that would be to triumph,—or, perchance, to fail through the effort to triumph,—more likely to exasperate than to soften. It enjoins the use of reason and argument. Amity is the essence of Christian effort, and love, its aim.

And if he shall neglect to hear them, &c. (vv. 16, 17). These show that truth must be vindicated and prevail, and that even forbearance must be subordinate to the discomfiture of obdurate offenders. Make your explanation of this in very plain language, especially avoiding the words we have used, and which are employed merely as suggestive to educated teachers, not as fit for, or intelligible to, children.

Tell it unto the Church, &c. If two of you shall agree, &c. (vv. 17—20.)—These verses show the authority of the Church, and the duty of continually seeking the mediatory functions of the clergy.

Till seven times? (v. 21.)—Peter knew well that there was no such limit to forgiveness, but he wished to draw out Christ's view of its extent. But the question came well from him, for he was hasty in temper. Our Lord answers him categorically, and so as to show that there is no numerical limit to forgiveness.

The remainder of the chapter consists of a parable full of the most

vital love, and beautifully illustrating the same truths. The large amount of the debt (v. 24) shows the vileness of the sinner who sues for forgiveness, and the magnitude of the mercy which concedes it. Turpitude is no barrier to grace: God's love exceeds it. The servant is forgiven. Improve the sequel. How forgiving should be the forgiven; how softened to others ought those to be who have felt the boundless loving-kindness of God; and far more, how forgiving should those be to their fellow-men for Almighty pardon! There can be no absolution without it. Ask what petition in the Lord's Prayer this brings to mind; and expatiate on it. Also give examples of the practice of duty drawn from the likelihood (or better still, the knowledge) of the child's actual experience. The sequel shows, that if we are unforgiving, and persist in the frowardness of wrath, and are self-avengers, God will surely punish our anti-Christian enmity to our fellow-men; for thereby we fit ourselves for hell, and shall be given over to the tormentors, till we have paid (suffered) all that is due.

Now these are only hints. The effect of the lesson will depend wholly on the teacher's care and skill in explanation. There are many professors who never explain; but they are not teachers. *Explanation first, and questioning after, are both essential to teaching:* it cannot be done without them; and most of all, is it essential that this be done in teaching Holy Scripture.

READING-BOOKS.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—Your correspondent M. E. C. maintains that such a knowledge of many things as it is in the power of a man to keep up in a line of equal progress, is preferable to the thorough knowledge of one subject, along with that acquaintance with other subjects which we have shown to be necessarily involved in it. Now, I think that any one who has accompanied me through the entire series of my papers on "Disciplina Rediviva" will see that I am contending for a real principle of study. I have again and again stated that my scheme is disciplinal in its character; and that discipline of mind is not commonly attainable through the medium of varied and cursory study, it is very much the object of these papers to show. Along with this must be borne in mind the fact, that I do not presume to address myself to any other case than that of young men, at a period of their lives when the natural tendency is rather to a desultory than a studious habit;—when their minds need fixing and concentrating to a focus of observation and reflection, rather than directing to a sphere of unlimited extent;—when the telescope may not be allowed to sweep the whole heavens restlessly, and before the discipline of severe preparation has supplied the observer with "the art of seeing," but must win for him his first inkling of scientific knowledge, through the steady contemplation of one planet, or one constellation. It would be easy to enumerate subjects of study, to an extent which might well bewilder the most intelligent lad of seventeen, even though, on being introduced to them, he were to be assured that, as to the manner of studying, "what is careless and inattentive will be

HINTS FOR SCRIPTURE LESSONS.—No. 1.

ST. MATTHEW xviii. 10—35.

Take heed that ye despise not one of these little ones (v. 10).—Amplify on this universality of God's care: little ones may be taken as lowly ones (who have come to Christ, for it has reference to vv. 2, 3), and does not merely mean children, which unduly restricts the sense. Question on parallel passages and other Scripture proofs of Christ's condescending love and pity towards the humblest. The latter part of this verse seems to say that the highest angels watch over the humblest men. The Jewish belief is herein apparently supported,—that each good man had his attendant angel.—(See Bloomfield on this.)

All that are lost (v. 11).—Shows the universality of redeeming grace. (See also v. 14.) It introduces the especial solicitude of God for the most erring.

Goeth into the mountains (v. 12).—This solicitude is likened to the anxiety of the shepherd after his one lost sheep. Here dilate and digress on habits of shepherds, and especially in mountainous countries, where the danger is peculiarly great, and the effort to recover the stray sheep proportionate. Just so ought we to go abroad to reclaim sinners: and this verse is often quoted in aiding missionary efforts.

He rejoiceth more of that sheep (v. 13).—This shows that the duties of Christianity and God's sympathies assimilate with ours.

It is not the will of my Father that one of these little ones should perish (v. 14).—Cite parallel passages: Epistle gen. of St. John ii. 2; Rev. xxii. 17, &c. &c. Deduce and show sin of uncharitableness and Phariseeism.

Go and tell him his fault between thee and him alone.—Convince him of it: for so the word ἔλεγξον means. Much may be made of this. It unfolds great Christianity, and the only way of meeting offences. (See also St. Luke xvii. 3: "Rebuke him.") This is in order to repentance. It is obvious from this, that silent forgiveness is not the forgiveness enjoined by God; but the effort to convince and reclaim is not to be ostentatious or public; for that would be to triumph,—or, perchance, to fail through the effort to triumph,—more likely to exasperate than to soften. It enjoins the use of reason and argument. Amity is the essence of Christian effort, and love, its aim.

And if he shall neglect to hear them, &c. (vv. 16, 17). These show that truth must be vindicated and prevail, and that even forbearance must be subordinate to the discomfiture of obdurate offenders. Make your explanation of this in very plain language, especially avoiding the words we have used, and which are employed merely as suggestive to educated teachers, not as fit for, or intelligible to, children.

Tell it unto the Church, &c. If two of you shall agree, &c. (vv. 17—20.)—These verses show the authority of the Church, and the duty of continually seeking the mediatory functions of the clergy.

Till seven times? (v. 21.)—Peter knew well that there was no such limit to forgiveness, but he wished to draw out Christ's view of its extent. But the question came well from him, for he was hasty in temper. Our Lord answers him categorically, and so as to show that there is no numerical limit to forgiveness.

The remainder of the chapter consists of a parable full of the most

vital love, and beautifully illustrating the same truths. The large amount of the debt (v. 24) shows the vileness of the sinner who sues for forgiveness, and the magnitude of the mercy which concedes it. Turpitude is no barrier to grace: God's love exceeds it. The servant is forgiven. Improve the sequel. How forgiving should be the forgiven; how softened to others ought those to be who have felt the boundless loving-kindness of God; and far more, how forgiving should those be to their fellow-men for Almighty pardon! There can be no absolution without it. Ask what petition in the Lord's Prayer this brings to mind; and expatiate on it. Also give examples of the practice of duty drawn from the likelihood (or better still, the knowledge) of the child's actual experience. The sequel shows, that if we are unforgiving, and persist in the frowardness of wrath, and are self-avengers, God will surely punish our anti-Christian enmity to our fellow-men; for thereby we fit ourselves for hell, and shall be given over to the tormentors, till we have paid (suffered) all that is due.

Now these are only hints. The effect of the lesson will depend wholly on the teacher's care and skill in explanation. There are many professors who never explain; but they are not teachers. *Explanation first, and questioning after, are both essential to teaching:* it cannot be done without them; and most of all, is it essential that this be done in teaching Holy Scripture.

READING-BOOKS.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—Your correspondent M. E. C. maintains that such a knowledge of many things as it is in the power of a man to keep up in a line of equal progress, is preferable to the thorough knowledge of one subject, along with that acquaintance with other subjects which we have shown to be necessarily involved in it. Now, I think that any one who has accompanied me through the entire series of my papers on "Disciplina Rediviva" will see that I am contending for a real principle of study. I have again and again stated that my scheme is disciplinal in its character; and that discipline of mind is not commonly attainable through the medium of varied and cursory study, it is very much the object of these papers to show. Along with this must be borne in mind the fact, that I do not presume to address myself to any other case than that of young men, at a period of their lives when the natural tendency is rather to a desultory than a studious habit;—when their minds need fixing and concentrating to a focus of observation and reflection, rather than directing to a sphere of unlimited extent;—when the telescope may not be allowed to sweep the whole heavens restlessly, and before the discipline of severe preparation has supplied the observer with "the art of seeing," but must win for him his first inkling of scientific knowledge, through the steady contemplation of one planet, or one constellation. It would be easy to enumerate subjects of study, to an extent which might well bewilder the most intelligent lad of seventeen, even though, on being introduced to them, he were to be assured that, as to the manner of studying, "what is careless and inattentive will be

entirely valueless; but that varied reading is by no means synonymous with careless reading." Now, my consolation to the youth's astonished mind (and a consolation truly philosophical I contend) would be, first, to point out to him what is conveyed in the term *thorough study* (see former papers; *e. g.*, on History), and then, by an easy transition of argument, to convince him that varied reading is, *to him*, synonymous with careless reading. I think that this point in the question, being the point at issue, should not have been dismissed by M. E. C. in a single clause of an affirmative sentence. It looks to me like an undoubted *petitio principii.*

Now I contend, that a thorough study of history, with its accessory topics, and with just so much acquaintance with these topics as is necessary to such thorough study, will benefit a young man's mind more, by enlarging it and bringing out its real strength and manifold capacities, than would a correlative and simultaneous handling of Chemistry, Political Economy, History, Moral Philosophy, Algebra, Arithmetic (of this, and of kindred instrumental methods, of course every youth of seventeen is supposed to possess a sufficient knowledge), and what not,—and this, with no other purpose than that of keeping up what cannot, in the nature of things, be more than a mediocre acquaintance with current subjects—such an acquaintance as the generality of men, "the mass," possess.

Our scheme relates to a particular class of minds, we again assert, and not to "the mass," although we have a notion that this same mass might be more easily dealt with, and broken up into more intelligent and tractable units, by inducing even the said "blacksmith" or "stocking-weaver" to take up his own line of research and study, and (not neglecting needful knowledge on points of life and human necessity) to keep to it. Is that same stocking-weaver a less or more intelligent man for his dogged pursuit of one of the out-door sciences,—Botany, Entomology, or the like? It seems to me, that the deeper we can induce men to dive (keeping their eyes open) into the mysteries of nature, the larger-minded we shall make them. Witness "that humble hero Mr. Charles Peach, the self-taught naturalist of Cornwall," spoken of with such enthusiasm by Mr. Kingsley (quoting *Chambers*), not only as "a collector of zoophytes and echinodermata," but as "a reasonable, well-judging man" (M. E. C.), of a large, because a deep searching mind, and with faculties disciplined in the gymnasium of an exclusive, but not narrowing study. Witness that "self-trained philosopher," towards whom one's heart always warms as towards a genial luminary of intelligence, the great Hugh Miller, a man who has a mind for other things than fossils, though it was through the medium of one exclusive study * that that mind assumed its present proportions,—a man, be it remembered, who emerged from a stone-quarry, to take his stand on a commanding elevation, in relation to the whole range of knowledge;—witness, if it be urged that these are exceptional cases, those many nameless individuals (I have known many of them in Yorkshire, and

* "As a specimen of the way in which a single district may be thoroughly worked out, and the universal method of induction learnt from a narrow field of objects, what book can, or perhaps ever will, compare with Mr. Hugh Miller's 'Old Red Sandstone?'"—*Glaucus*, p. 163.

you may find scores of them in Bethnal Green) amongst our artificers, whose collections of dried plants, or carefully-preserved insects, bespeak a power of generalization, which could not have been attained through the simultaneous pursuit of half a dozen subjects; but which, through the steady pursuit of one, has placed them on a level with men of science and education.

It seems to me, that the more we combat shallowness, the wider we extend the limits of mind, even though at the expense of a limitation as to subject-matter, which finds its justification in our limited capacities, our limited inclinations, and our limited time.

I think I have shown the unfairness of the argument which claims a position of analogy in the circumstances of the man and his trade, by embracing that case and those conditions within the limits of my own provision.

The disciplinal aim of these papers directs attention to the mind itself, rather than to the field of man's observation. We have treated of subject-matter mainly in so far as it relates to this object; viz., the strengthening and culture of the faculties, in their due subordination and precision. Enlargement of mind we do not so much dwell upon, because that is the issue of silent growth, and is rather a result than a conscious object of study or of discipline; as such, and connected with such a laying-out of life-studies as is consequent upon some more mature stage of the mind's progress.

We need scarcely say, that we do not recommend a passive habit of mind in relation to current events, or to subjects of temporary interest. Much that is absolutely necessary to be acquired, and much that is rendered necessary by the influence of circumstances of extraordinary interest, will be allowed for a time, and in some degree, to displace the severest rule and system of study. We cannot be understood to debar the student from obedience to that natural impulse which prompts him to remedy the defects and the defaults of knowledge of various kinds, which every man must in daily life, and in his contact with thoughtful men, experience. In conclusion, we must say, that we observe, in the last paragraph of M. E. C.'s letter, remarks which go far to concede what we contend for; viz., "that in youth, when the mind is less able to digest the food with which it is supplied, care is requisite not to overtask the awakening brain, or prevent its acquiring the power of concentrating all its energies upon any point to which it is at the time directed." As to the means of acquiring this power of concentration, we differ.

Thanking your able correspondent for having done me the favour of calling attention to my remarks, and also for the very courteous manner in which he tenders his views,* I am, Sir, yours truly, J. S. G.

[* And our correspondent will the more appreciate the urbanity of this reply, because she happens to be a lady.—Ed. E.J.E.]

POPULAR EXPLANATION OF REGNAULT'S DISCOVERIES RELATIVE TO THE LATENT HEAT OF STEAM AT DIFFERENT TEMPERATURES. By T. Tate, F.R.A.S.

It is highly desirable that teachers should be made acquainted with the discoveries that are being made in those branches of science which bear directly on the industry of the country. The recent discoveries of Regnault, relative to the laws of heat, appear to me to be intimately connected with the economy of steam-power, and the efficient action of the steam-engine. A popular explanation of these discoveries, therefore, should not be deemed unworthy of the attention of the schoolmaster of the industrial classes of a country whose proudest achievement is the subjugation of the mighty power of steam.

UNIT OF CALORIC.

So long as the form of a body, whether solid or liquid, remains unchanged, its capacity for heat, or caloric, is constant, whatever may be its temperature, or at least is so very nearly for ordinary bodies. Thus, for example, the quantity of caloric requisite for raising the temperature of a pound of water from 60° to 70° temperature will be the same (or very nearly the same) as that which would be requisite for raising this water from 70° to 80° temperature: and so on to other cases. This law, as applied to water, gives us an exact method of measuring the quantity of caloric transmitted to any substance, and of laying down an exact definition of what is called *a unit of caloric.*

Definition.—A unit of caloric is that quantity of heat which is necessary to elevate a pound-weight of water one degree of temperature, estimated by Fahrenheit's thermometer, or the thermometer in common use in this country.

LATENT HEAT OF STEAM.

When water is heated in an open vessel, such as a common kettle, the law which has just been explained, holds true up the temperature of 212°, or the boiling temperature of water; but the moment the water begins to boil, its temperature ceases to rise, and the vapour or steam which is formed, passes off with the same temperature as the boiling water. This process will go on so long as there is a drop of water in the vessel. What becomes of all the heat that is being applied to the water? It has become *latent*, or hidden, in the steam. This latent caloric is the caloric requisite for maintaining water in the state of elastic vapour or steam. Dr. Black discovered the principle of latent heat.

The latent heat of steam at boiling temperature, or 212°, has been very accurately determined. There are 934 units of caloric latent in a pound of steam at 212° temperature; that is to say, the caloric absorbed by a pound of water in passing into the form of steam, is such as would elevate 934 pounds of water one degree. When steam is condensed, or brought back to the state of water, this latent caloric is set free, or given up to the cold substance used for condensing the steam.

LAW OF LATENT AND SENSIBLE HEAT OF STEAM AT DIFFERENT TEMPERATURES AND PRESSURES.

When steam is generated in the closed boiler of a steam-engine, the heat applied to the boiler raises fresh portions of vapour, which increases

the density and elasticity of the steam already formed, so that the increase of temperature given to the steam, is not only attended with an increase of pressure, but also with an increase of density: experimental tables have been constructed, giving the relation of the elasticity, temperature, and density of this steam. The steam that is thus raised, in contact with its water, is said to be in a state of saturation with respect to watery vapour, and then the steam has the greatest density it can attain under the given temperature; but if this steam be separated from the water, and additional heat applied, the relations of temperature and density of saturated steam no longer exist, for whilst the temperature of the steam is increased, its density is no longer increased by fresh supplies of watery vapour.

Black and Watt concluded from their experiments, that the sum of the sensible and latent heat of a given weight of saturated steam is always a constant quantity, or in other words, that steam at any given pressure contains the same quantity of caloric that there is contained in the same weight of steam at any other pressure. Thus, if L be put for the units of latent caloric in a pound of steam at T temperature, then, according to this law,

$$L + T = 1146{\cdot}6\ ;\ \text{or}\ L = 1146{\cdot}6 - T.$$

This simple law, until very recently, was universally adopted by natural philosophers; but the experiments of Regnault have shown, that the total units of caloric in a pound of steam increase with the sensible temperature of the steam.

If λ be put for the total units of caloric in a pound of steam at T temperature, then the law discovered by Regnault will be expressed by the formula

$$\lambda = 1082 + {\cdot}305\ T.$$

This law shows, that in order to raise the temperature of saturated steam one degree, there must be ·305 of a unit of caloric added to that steam. The fraction ·305 may be regarded as the specific heat requisite for maintaining steam in a state of saturation: it is the caloric required to raise the temperature of saturated steam one degree.

Example.—Required the latent heat of saturated steam at a temperature of 300°.

Here T = 300; hence we have, by Regnault's law,—

$$\lambda, \text{ or the total caloric} = 1082 + {\cdot}305 \times 300 = 1173{\cdot}5.$$

$$\therefore \text{the latent caloric} = \text{total caloric} - \text{sensible caloric.}$$

$$= 1173{\cdot}5 - 300 = 873{\cdot}5.$$

Now, according to Black and Watt's law, we have

$$L, \text{ or the latent caloric} = 1146{\cdot}6 - 300 = 846{\cdot}6,$$

giving an error of 26·9 in this case.

It will be observed, that a large proportion of the heat employed in our steam-engines is taken up by the steam in the form of latent heat, and this latent heat performs only a small proportion of the work done by the engine: this constitutes the great defect of our present form of the steam-engine. Mr. Joule, of Manchester, has shown that a unit of caloric, acting under the most favourable conditions, is capable of performing about 770 units of work; now our best steam-engines do not perform more than one-third of this work. Hence we are led to conclude, that we have not yet attained the most economical mode of applying steam power.

DISCIPLINA REDIVIVA—No. 9.

SOME REMARKS UPON MORAL PHILOSOPHY.

THIS branch of mental science* calls for special consideration. It is that great philosophy whose subject-matter is the vast "field of probability in which we live and move." It is peculiarly the science of human life and human necessity. As such, its study is calculated to discipline the largest region of human intelligence, and that under the light and steady influence of the largest human responsibility. As men, our minds are less naturally directed to the contemplation of what are called scientific truths, than to the observation and analysis of those phenomena of human conduct which accompany us and bespeak our presence in the natural world.† As men, we cannot fail to receive the impressions of the true philosopher of morals. He finds the principles of his philosophy in the hearts of all, and can speak to us in a language which is at once scientific and familiar. When engaged in the study of moral philosophy, we exert the power of self-consciousness in a manner quite distinct from religious self-contemplation. This attitude of the mind, generalizing upon the symptoms and the facts of its own being, is the philosophical attitude.

The province of moral philosophy is not under the exclusive jurisdiction of any one class of inquirers. It is common ground, so to speak, where all have right of pasturage, and to which all may find ready access from the field of their own restricted inquiries. It is the philosophy of natural and revealed religion alike. It has two aspects or characters: the one theoretical, wherein it is regarded as a science, dealing with principles alone—the science of morals; the other practical, in which it may, in some sense, be considered to be an art,—the ethical art, or the *laws* of moral science reduced to a system of *rules* and practical prescriptions.‡

"Moral philosophy," says an able writer, "must not be confounded with ethics, properly so called, or with casuistry; its province is of a higher order, its subject-matter more comprehensive; it is not merely to furnish admonitions and exhortations to duty, nor to solve difficult questions of rare occurrence; if it be entitled to the name of philosophy, and to take its place among the sciences, it must search after principles; it must ascend to the source of duty and obligation; it must examine the nature of man, and analyze his mental faculties; and must lay the foundations of morals in the phenomena of mind. In a word, its busi-

---

* Cf. the scheme of the mental sciences given at p. 362 of Mr. Thomson's "Outline of the Laws of Thought."

Mental Sciences	Reason	Logic; or, the science of the forms of thought. Metaphysic; which examines the ground of all knowledge of things.
	Choice and Affection	Morality; founded on the conception of right. Æsthetic; founded on the conception of beauty.

† "The proper study of mankind is man."—*Pope.* The very fact that this line of the poet *is* a "hackneyed" quotation, is surely, in itself, significant.

‡ Cf. "Outline of the Laws of Thought," as quoted in last paper, for the difference between *laws* and *rules*, p. 439.

ness is to teach men their obligations, and the reasons and principles of them. As these obligations branch out into the duties of citizens no less than individuals, it comprehends political science along with ethics, properly so called; as they have their origin and root in the feelings and affections of our intellectual nature, it is closely and inseparably connected with mental philosophy. Moral philosophy, then, in its widest sense, comprehends all those subjects which are most interesting and important to the welfare of individuals and communities."*

The task of the moral philosopher is connected with most weighty and comprehensive considerations. The field of his scientific labours has been again and again invaded by the enemies of revealed religion, and he will find in it, therefore, abundant work of the very highest character marked out for him. As a believer in revelation, it is his business to examine the analogies of nature, and to exhibit them in their harmonious significance as witnesses to the great scheme of man's redemption. Religion is more frequently assailed under cover of a specious affectation of morality, than openly and on the ground of its positive teaching. Arguments insidiously based upon the rule of expediency (countenanced, as that rule has been, in the ill-considered theories of certain moralists), are, in effect, more injurious to the fabric of divine truth than the whole array of direct offensive hostility sustained by acknowledged adversaries. It is from considerations of this kind that we are disposed to attribute peculiar importance to the study of moral philosophy, on the part of a certain section, at least, of the community.

It is an acknowledged fact amongst Oxford men, that the highest part of their training—that to which they are most deeply indebted—is the discipline derived from the methodic study of moral science, as pursued through the period of their residence at the university. If there were no other ground for gratitude to *Alma Mater* there is this, that they were duly inoculated with a philosophical habit, through the careful, and as some might say, the dangerously exclusive study of Aristotle's system of ethics. Again and again we have heard this willing tribute paid by men in all stages of their career, subsequent upon leaving Oxford. And, by the way, we may observe, that it is no slight honour to the other great university to have confessed the claims of a sister in the province of her own peculiar study, and to have listened patiently to one of the most distinguished and faithful of her sons, interpreting the language of the greatest moral philosopher that modern times have seen. We allude to the impulse given to the study of moral science by one from whom we hope to be permitted shortly to quote.

We would now briefly urge upon a portion of our readers some considerations connected with the study before us. Some of those whom we hope to address, are not unlikely, at some future time at least, to be called to a position of responsibility in connection with the great questions of human life, and human action, and human obligation. To those who look forward to taking any part in offices of judgment, whether as adjudicators or the assessors of justice, we would point out some features in the relation of ethical studies to law and its administration.

The tendency of a complicated system of jurisprudence, based as it is

* Mills's Essays and Lectures, pp. 157, 158. Oxford: W. Graham. 1846.

in many of its positions, upon principles of expediency,* is not, *throughout*, directly advantageous to the growth of a sound philosophy in the minds of those who have to direct or influence its operations. It may indeed be hurtful to them, if they are not in the habit of recollecting themselves in the midst of manifold technicalities, and reverting alike to the first principles of right and to the condition of humanity in relation to the operation of those principles. On the other hand, how beneficial may we not conceive it to be to the young lawyer to seek in moral science at once a relaxation from the restraints of artificial obligations, and an unbending of that constrained attitude of mind which the study of human law, as such, necessitates. In moral philosophy he rises, so to speak, into that higher atmosphere, in which considerations other than human are allowed to mingle with and temper justice. He has, at such times, an ear for the complaints and for the bitter remonstrances of human frailty (ay, and of a more subtle equity), of which he must, in his inn of court, be heedless. He has an eye for other circumstances, in the cases submitted to him, than those which can be comprehended in the severe formularies of judicial defence and impeachment.

By such studies, and by an induction from the facts and phenomena of human action that meet him in his official course, he might aim at acquiring a philosophical depth and comprehensiveness of grasp, which would season invaluably that unprofessional opinion which it is permitted even our judges, along with their sternest decisions, and much more on occasions of public social interest, to pronounce. Here, we contend, is a field of most interesting study opened up, on the confines of a severe professional province,—and that field is embraced within the limits of the science of which we are speaking.

Religion needs such students and such teachers as these, beyond the limits of her own sacred offices,—men sitting on the seats of judgment, and pronouncing not upon the merits of theological questions (into which faith and its accessories peculiarly enter), but upon those many problems of human action, and of a larger educational discipline, in which the cause of justice is so deeply interested, and upon which its most exalted secular advocates are signally authorized to pronounce.†

But to proceed with our subject. "Difficulties may press around us at every step in the investigation of such subjects as moral philosophy

---

* Certain principles of expediency do enter rightly into the scheme of national justice; but they enter into it in such a manner, and in such subordination to the higher ends of justice, as not to discredit the solid foundations of law, as laid deep in the principle of *right*, and witnessed and approved by "the general voice of mankind."

† Such *signal* advocates religion and truth do find amongst the judges of the land. The example afforded by such men as the late Serjeant Talfourd, and by many other lights still burning in the golden candlesticks of justice, is a possession (κτημα εις αει) to all who would, after their measure and by a consistent devotion, exalt that "righteousness" which in its turn "exalteth a nation." In peace and in war, in courts of law and in the quiet assemblies that spring of a growing desire for enlightenment (we know that we are using a dangerous word), there is much room for many workers; men of that quiet wisdom and character which is the growth of discipline; men of that large faith, which can commit the issue of its labours to other means than those under its own sole control, and which is *not* what the world calls *liberality;* men who have a definite belief and a definite religious purpose, which *binds* them, but teaches them anon that patience, which should be, in a world like this, the smoothest-worn side of many-sided charity.

presents; we may be continually baffled in our expectation, but the truth, though partially, will not be entirely concealed; and the imperfect knowledge we gain will amply reward the labour employed; and, like the alchemists in their search after gold, even if we fail of success, we shall meet with many valuable discoveries by the way, to be employed for the benefit of ourselves and others. Inquiries of this kind, if properly conducted, impart strength, acuteness, and elevation to the understanding, beyond any other studies whatever; and the man who has been trained at an early period of life in this course of mental cultivation, will be sensible of its advantageous effects in every branch of investigation, whether practical or speculative, to which he may subsequently devote himself. The graces of poetry and eloquence may be necessary to adorn the temple of knowledge, but its foundation and its pillars must be erected on that capacity for solid thought which moral and political sciences are best calculated to create and mature. And considered in this view, without reference to any direct consequences, they have been well compared 'to the crops which are raised, not for the sake of the harvest, but to be ploughed in as dressing to the land.'"*

Thus much has been said with the view of inducing to the study of moral philosophy. We have spoken of it as a science with whose general scope and functions our readers are supposed to be familiar; but before concluding what, amid much occupation at the busiest period of the year, must be a short paper, we propose to consider one or two points which would be useful to any one taking up the study without much opportunity of direction, and which may serve as a nucleus to his inquiries. We shall take occasion also to suggest the characteristic value of certain books on the subject, both ancient and modern.

To quote the Introduction to Dr. Whewell's "Lectures on the History of Moral Philosophy in England,"†—"Schemes of morality, that is, modes of deducing the rules of human action, are of two kinds:—those which assert it to be the law of human action to aim at some external object (external, that is, to the mind which aims), as, for example, those which, in ancient or modern times, have asserted pleasure, or utility, or the greatest happiness of the greatest number, to be the true end of human action; and those which would regulate human action by an internal principle or relation, as conscience, or a moral faculty, or duty, or rectitude, or the superiority of reason to desire. These two kinds of schemes may be described respectively as dependent and independent morality. Now, it is here held, that independent morality is the true scheme. We maintain with Plato, that reason has a natural and rightful authority over desire and affection; with Butler, that there is a difference of kind in our principles of action; with the general voice of mankind, that we must do what is right, at whatever cost of pain and loss. We deny the doctrine of the ancient Epicureans, that pleasure is the supreme good; of Hobbes, that moral rules are only the work of men's mutual fear; of Paley, that what is expedient is right, and that there is no difference among pleasures, except their intensity and duration; and of Bentham, that the rules of human actions are to be obtained by casting up the pleasures which actions produce."

---

* Mills's Essays and Lectures, pp. 159, 160. Oxford: W. Graham. 1846.
† Introductory Lecture, pp. ix. x. London: John W. Parker. 1852.

"This supreme rule, that we must do what is right, is also the *moral* rule of human action. Having got this notion of what is right; what we ought to do; what we should do; we are already in the region of morality."—*Ibid.* p. 11.

The book from which we have just quoted, furnishes, we believe, the most comprehensive and careful survey of the ethical systems which have been originated or adopted by our own countrymen. We have already stated the difference of principle which divides them into two great antagonistic bodies. The friendly and kindred systems, which went to form the schools of dependent and independent morality respectively, present (*inter se*) on either side an endless variety of feature and complexion, but there is no essential difference of principle involved in them. The grasping of these minor differences (in the study, at least, of the latter of these two systems of morality), and their logical adjustment and reconciliation, would afford abundant ground for the strengthening of the judgment and the reasoning powers.

But to proceed: "The question of moral obligation divides itself into two heads:—1. What is the foundation of moral relations, or in what virtue consists. 2. With what faculties or internal principles the human mind perceives those relations." *—P. 201.

"With respect to the first question, or the foundation of morality, the chief controversy has been, whether moral relations are immutable and eternal, or arbitrary and contingent.

"The immutability of moral relations has been defended by many of the ancient philosophers, and principally by Clarke and Cudworth among the moderns.

"Their contingent and arbitrary nature has been maintained by many sects of philosophers, widely differing from each other in their notions respecting the manner in which these relations, although at first indifferent, were created and established."—*Ibid.* p. 202.

For an interesting discussion of these points, we refer the reader to the little book just quoted. In the lecture "On Moral Relations," the author has some useful remarks upon the ethical doctrines of the Greek philosophers, which may tempt to a perusal of the earlier part of the "Republic" of Plato. In the Socratic dialogue, which Mr. Kingsley put out some time ago, under the title of "Phaethon; or, Loose Thoughts for Loose Thinkers," as well as in the invaluable work by Mr. Rogers, entitled, "The Eclipse of Faith," we recognize a certain philosophic instinct of manner, derived, doubtless, from a thorough study of Plato,† which may have prepared some, perhaps, for a first-hand acquaintance with that great writer. We address some, indeed, who may have in-

---

* Mills's Essays and Lectures. Oxford: W. Graham. 1846.

† "It might very well be thought serious trifling to tell my readers that the greatest men had ever a high esteem for Plato, whose writings are the touchstone of a hasty and shallow mind; whose philosophy has been the admiration of ages; which supplied patriots, magistrates, and lawgivers to the most flourishing states, as well as fathers to the Church, and doctors to the schools. Albeit in these days the depths of that old learning are rarely fathomed; and yet it were happy for these lands if our young nobility and gentry, instead of modern maxims, would imbibe the notions of the great men of antiquity. But in these free-thinking times, many an empty head is shook at Aristotle and Plato, as well as at the Holy Scriptures."—*Siris, in Bishop Berkeley's Works*, vol. ii. p. 613, quoted by Mills.

cluded in their school-list the "Phædo" or the "Phædrus," or, again, the "Memorabilia" of Xenophon; but who would now approach these authors from the side of a different interest, and with a different end in view, in the study of his writings.

As they pursue these and the like studies, they will see that the great truths which lie at the root of all religious and moral obligation whatever, are such as the upright heathen philosopher contended for more than two thousand years ago.* They will find the witness of Heathen and Christian thus far agreeing together, and combined into one great scheme of morals, co-extensive with the bounds of humanity itself. They will learn to separate an abstract principle from the character or bias of those who promulgated it, and to judge of the one on its own merits, apart from the other. Whilst they confess the unimpeachable purity of the upholder of the dependent system of morality in the person of Paley and others, they learn not the less heartily to condemn a theory whose tendency is to "lower and degrade the basis of morality; to seek for it in earth rather than in heaven; to gather it out of the modes and relations of human custom and usage, accidentally determined, and which experience has shown to be expedient, rather than to build it upon the settled relations of things, and upon those faculties and feelings which conducted men to the right path, before experience could have pointed out the salutary consequences."†

The tendency of moral studies, in the largest sense of the term, is to impart a certain fairness of judgment to the mind, and to give it an instinctive power of weighing (in relation to first principles) the true value of those arguments and objections in the field of contingent matter, with which it is so largely the business of human life to deal.‡

We have already recommended the study (by as many as find that they can compass it) of Bishop Butler's works. His three sermons on Human Nature, along with the "Introduction," and the "Dissertation on the Nature of Virtue," form a kind of text-book, within a moderate compass, around which the student might gather very varied illustration, and the fruits of other ethical studies.

Dr. Whewell has detached the sermons and treatises just named from the rest of Bishop Butler's writings, and prefixed a valuable analysis and preface of his own,—publishing the whole in a small volume.§ To any one desirous of laying a sound foundation in moral science, we would recommend the very careful study of this combination of treatises—the study, in short, which Bishop Butler himself demands as absolutely

---

* "Whatever differences existed between Plato and Aristotle respecting the origin of ideas, and indeed many minor points in their *moral* systems, they both held, in opposition to the Sophists, the immutable distinctions of right and wrong: they both held, that it was the proper business of life so to train up the good and evil influences implanted in us, as to make the evil obedient to the good, according to the law of our natural constitution, by which the understanding is appointed to govern, and the affections to submit."—*Mills's Lectures*, pp. 177, 178.

† Mills's Essays, &c., p. 184.

‡ "Philosophy does not exist until the mind of the student begins to work for itself, with the principles it receives historically; to decompose and to compose anew, to criticise the arguments employed, to essay at least to push the confines of truth farther into the wilds of error and ignorance, and to leave her a wider territory."—*Outline of Laws of Thought*, p. 364.

§ Deightons, Cambridge, 1848.

necessary to the understanding of a subject abstruse in itself, and involving much of abstract thought and argument. The prescriptions alluded to are contained in the preface to his sermons, and will be recognized by our readers as having been in part adopted in a former paper. In fact, they set forth the essential conditions of all study whatsoever, and are worthy of constant perusal, apart from the immediate connection in which they stand.

We have now given an imperfect outline of some of the conditions of the study of Moral Philosophy; we have also held out some inducements to the thoughtful to undertake such study. We close a hasty review of the subject with some apology for having thus entered upon a theme, not new to us indeed, but which we should have wished to digest anew (had time permitted), with especial regard to our present design. If the plan which we entertain of eventually reprinting this series of papers should be carried out, we promise, in this article, as well as in the rest, to exercise a careful discrimination of matter, so as to give to the whole something of the harmony and completeness involved in our original design, and at the same time to secure that accuracy and certainty of expression which should characterize an educational treatise.

The letter of M. E. C., which we hope to find time to notice elsewhere, gives a cue, which we welcome, not for polemical discussion, but for the furnishing of such friendly hints towards a satisfactory completion and reissue of our design, as it is in the power of many amongst your readers to offer. J. S. G.

ASPIRING TEACHERS.—The desire to read for orders, with the reservation already made, should be discouraged in the teacher; that he should learn to regard his own as a sufficiently honourable calling. So far from the "admission of many schoolmasters to orders" being a sufficient answer to our lament, it is a cause of lament, and an evidence of its justice. Let a man distinguish himself as a teacher; let him exhibit qualifications which a clergyman does not commonly possess, and which would be useless to him, did he possess them; let him show himself eminently useful in the schoolroom, and a grateful society will transfer him to the pulpit; let him demonstrate himself to be the right man in the right place, and he may aspire to be translated to a wrong one. Either good teachers are wanted or they are not. If we take the first supposition, it is folly to withdraw proved ability from the profession; if the latter, we need offer no inducements to emulation. If, as we believe, the qualities constituting a first-rate teacher are rarely combined with those that form the useful minister of the Gospel, then we do not, by this species of promotion, reward good teachers, but hard readers, who *may* have given to self-culture some portion of the time and energy they should have lavished unreservedly upon their schools. The affair bears absurdity upon its forefront. Do we tempt the ambition of a Sandhurst cadet by promising to reward his military ability with the command of a frigate; excite the sluggish emulation of a civil officer with the prospect of a colonel's commission; or set before the eyes of him who toils over Coke upon Lyttleton and Tidd's Practice the harvest of a bishopric? Yet the qualities which constitute excellence in any of these professions are not more dissimilar than those which sustain and dignify the clerical and scholastic character. A first-rate teacher would often be ignored as a social utility by the assumption of the clerical office. And what would be the effect of this system? Just that which Mr. Longueville Jones supposes. Set before a young man, fresh from the training-college, the idea that the great aim of his life is to convert his C.M. into B.A., and we may expect to find him more careful of a neckcloth of clerical white than of foul copy-books in his first class, and more disposed to exhibit his personal knowledge of the Greek Testament than to teach Tom Styles to read the vulgar version.—*The School and the Teacher.*

Notes of New Books.

The Theory and Practice of Notes of Lessons. By John Jones, Certificated Teacher, and Head Master of the Countess of Harewood's School. Pp. 136. London: Simpkin and Marshall.

This little work is a welcome addition to our school literature. We have had an abundance of works on the subjects to be taught in schools, but the manner of teaching them has been comparatively neglected by writers on elementary instruction. Perhaps the founders of our great schools of the art of teaching considered the teachers whom they turned out from their training schools to be the best exponents of their methods. Certain it is that good serviceable manuals of method, beyond a mere detail of school drill, are very much wanted. We therefore see with pleasure a trained and experienced teacher like Mr. Jones, come to the assistance of his less fortunate brethren, who have been compelled to practise their art without having previously learned it. The book comes to us with high recommendations. A thousand copies of the first edition were sold in a few months, and it has come to a second edition. It is also highly praised by one of H. M. Inspectors, the Rev. Mr. Watkins, two educational periodicals, and Mr. Boardman, President of the Associated Body of Church Schoolmasters. We therefore sat down to read it with a strong prepossession in its favour, and almost prepared to find ourselves added to the list of admirers, whose praises grace the first leaf, in the next edition which may appear. But to use the words of one of the inspectors of schools, "we are critical, or we are nothing." Unless we state, without fear or favour, our unvarnished opinion of the works submitted to us for notice, we are betraying the cause of educational progress which it is our duty to promote. We therefore feel ourselves compelled to mar, with some discordant notes, the harmony of those laudatory paragraphs.

We will, however, begin with stating what we like in the book. We have been much pleased with the chapters on Preparation of Notes of Lesson, Questioning and Illustration. The author has made good use of the writings of our standard educational authors, exercised a sound judgment on the subject he was treating, and expressed his matter in good and simple English. We consider these chapters calculated to be extremely useful to the class of teachers to whom our author addresses himself, namely those who have not possessed the advantage of training. Indeed all parts of the book which consist in theory and precept are excellent. But we cannot award equal praise to the practical part. We find it not unfrequently in complete contradiction with the former, so that if the work were divided into two, the one treating of the "Theory" and the other of the "Practice," we should never guess that they came from the same hand. A few examples will suffice to illustrate our position. At p. 42, the author cites with approval the dictum of Mr. Ross, in his "Teacher's Manual of Method," "Teach your pupils as little as possible," which he explains to mean, that the teacher should not do for them what, with an ordinary amount of painstaking, they might, and ought to, do for themselves. "It is not so much," he adds, "what the teacher does *for* the scholar, as what he leads him to do for himself, that is of real value to him. Any plan of teaching is bad, in proportion

as it condemns the pupils to be merely passive recipients; and good, in proportion as it calls into healthful exercise their self-energies and self-endeavours after improvement." In order to carry out this principle, the notes of a lesson should contain very little positive teaching, and should consist mainly of a sketch of the method to be pursued in the lesson—so that the pupils should be led to discover as much as possible of its subject-matter for themselves,—and the most important of the questions to be asked, leaving the filling-up to the discretion of the teacher. They should be strictly notes to assist the teacher's memory as to the *plan* which he had determined upon for his lesson, not as to the matter to be taught. The best example of this method is given in the "Notes and Sketches of Lessons," published by the Home and Colonial Society. We will cite as an example part of the note of a lesson on Leather.

"*Introductory Remarks.*—Importance of leather as an article of daily use.—Skins of animals used for clothing in the earliest ages, and nearly all parts of the habitable globe.—(Require pupils to give examples.)

"Flexibility and elasticity of skin when taken from the animal.—(Draw from the pupils the meaning of the words *flexibility* and *elasticity*, &c.") The reader will perceive that in this extract the principal object is to remind the teacher *how* he is to teach, and not *what* he is to teach. This principle is, however, still more prominently exhibited in the "Sketches," the form which may be said to be peculiar to the Home and Colonial system, and that which they, with great justice, prefer to the "Note." These sketches are precisely what a master of method would make for the guidance of a student. Mr. Jones' notes are framed on a different principle. They are epitomes of the subject of the lesson, and only bear upon the method of imparting it in being drawn up in a certain order, which the teacher intends to follow. They are also, mostly, far too long for one lesson, and would require to be broken into two or three lessons. Mr. Jones correctly states at p. 39, that the subject under consideration must be presented to the children in the form of a "*short* lecture," but he appears to have lost sight of that principle in the composition of his notes. It is a proof how little it has been present to his mind that a prize note on the life of St. Paul is the longest and most overcharged with facts of all, and we are less surprised than Mr. Jones appears to be, that it was rejected for that reason. Another of Mr. Jones' precepts is "Let your explanations be clear and simple, and suited to the knowledge which the children possess." Let us see how it has been adhered to in the notes. We open the book and find a lesson on salt. On its "uses" we find the following explanation: "In small quantities it accelerates putrid fermentation, and thus aids digestion; in large quantities it has a contrary effect, and lends to preserve organic substances from corruption. It is indispensable as a condiment of food," &c. Now we do not say that this would be unintelligible to an advanced class, but we are sure that if a teacher addressed them in this language, and in the tone which it it is likely to induce in the person using it, he will not long be able to keep them attentive and active. In a lesson on the answer to the question "What is required of them who come to the Lord's Supper?" we find "former sins" explained, "sins committed previously, all sins." Now every child will know what "former" means, but few will understand the meaning of "committed previously." At all events the author has fallen into the error of

explaining what needs no explanation, and doing so by words which do need it. But according to his system, the subject must be dissected and broken into as many divisions as possible, and each of these must have a corresponding subdivision, to explain or illustrate it; so that, if any division should chance to be perfectly intelligible, its subdivision must necessarily obscure it.

This is the bane of all cast-iron methods. A certain framework is constructed, into which all subjects are required to fit, and as long as every pigeon-hole is properly filled with something, necessary or unnecessary, the object of the constructor is answered. Symmetry and completeness on paper become his principal aim, and the object for which the notes are designed, the *lesson itself*, is lost sight of. We are sure that Mr. Jones would not have lost the prize if he had written his lesson on St. Paul in the form of a sketch of lesson, like those published by the Home and Colonial Society, because it would have admonished him of the faults of prolixity and over-elaborateness which occasioned his failure. Our first objection to the form of notes adopted by Mr. Jones, is that it is calculated to lead the composer of them astray from the object he ought to have in view; we are also of opinion that it produces an equally misleading effect on him when he is delivering the lesson. A little reflection will show that any notes intended to assist a person in oral delivery should be written, as nearly as possible, in the language in which people speak, so that portions of them can be interwoven, without alteration, with the discourse. If they be "cribbed, cabined, and confined" between perpendicular lines, and expressed in a concise and elliptical style, they cannot be consulted in the course of the delivery of the lesson, without, to a greater or lesser extent, checking the flow of its language, because the lecturer or teacher must transform them into the style of oral language before he can make use of them.

There are only two lessons on Geography, one of which is placed in the Introduction, and the other at p. 116. Probably the reason why this class is so imperfectly represented is, that that subject admits of such complete classification, that it is possible to frame a form of lesson which shall be applicable to every country. This is what Mr. Jones has done. "The first particulars," says he, "to be noticed would be its position, boundaries, area, &c.; then the climate, soil, and productions; the mountains, with all particulars respecting them would come next, as being the principal and grandest physical feature of the country; the next step would be the rivers which rise in the mountains,—their direction, length, tributaries, the lakes which may be formed by them, basins, cataracts, and confluence with the sea; then the towns erected on the banks of the rivers, with any remarkable historical events by which they may be distinguished; and lastly, the people which inhabit the towns, population, manners and customs, agriculture, manufactures, exports and imports, language, religion, education and government, literature and celebrated men, &c. &c." He then proceeds to tabularise these topics, so as to form a general form of lesson on any country.

Now, in addition to the defect of extreme length and complexity common to all Mr. Jones's lessons, we must take exception to the order in which the heads of the lesson are placed—namely, Etymology, Position, Extent, Boundaries, &c., Climate, Soil, and Productions, Divisions, Mountains, and so forth. In our opinion, "Divisions" ought to go

after "Position, Extent," and "Mountains" should precede "Climate," because they are one of its principal determining causes; and the pupils should be led by the questions of the teacher to deduce from all the physical features, and the position of the country, what *must be* its climate, and thence what must be its productions. But we have a further objection to this method of teaching geography.

We are inclined to think that teachers have not formed a clear idea of the peculiar advantages and disadvantages of classification. Its chief utility is as an aid to the memory. It brings together objects of the same nature, and separates them from those of different nature, thus arranging them under a few heads, which are easily carried in the memory. But this advantage is attended with some inherent disadvantages. In the first place, classification is the direct opposite of nature. Mountains, rivers, &c., are never found classified, but are blended together in endless variety; secondly, it destroys the perception of the mutual action and reaction of the parts in which nature may be divided. It has often been our fate (and, we fear, will be so for many years to come) to hear lessons on geography delivered, in which—first, all the capes, promontories, and headlands: then all the bays and gulfs: then all the mountains, running the heights of the principal peaks: then the rivers, in the order of their lengths; and so on, are rapidly enumerated, like the articles in an inventory, and afterwards repeated by the children under examination, in the same order and with equal rapidity, by the mere exercise of verbal memory, but without the slightest exertion of the intellectual, or even the perceptive, faculties. Such lessons are very nearly useless, and forgotten almost as quickly as they are learnt. We do not, however, contend that classification should never be employed. It is a very good exercise of memory to make the pupil name, in a certain order, all the capes, mountains, rivers, sea-ports, &c., of a certain country. But this is not the order in which those things should be *taught*. They should be presented to the learner *as they are* in nature, and their mutual relations should be the guide of the teacher in grouping them together in his lesson. For example, the mountain-ranges, with their river-systems, the basins drained by them, the towns on the banks of these rivers, the ports at their mouths, &c., form a natural and logical division of the subject. In some portions of the globe the tablelands and lowlands would determine the groups into which the lesson should be divided. In others, the deserts and fertile tracts would be the principal landmarks. The choice of the leading principle on which a lesson on geography should be divided, must vary with the subject, and must be left to the discretion of the teacher; and the manner in which he exercises it will form a conclusive test of his ability and skill. In examining, he should endeavour to bring out, in as great relief as possible, the natural connection of the parts of his subjects, and lead the children to discover, by reasoning, the conclusions as to climate, productions, employment, &c., which may be drawn from that connection. But he may also occasionally exercise the memories of his pupils as to mere facts, by requiring them to name all the mountains, rivers, towns, &c., in a country. These are the only general rules which can be framed for the preparation of a geographical lesson. To construct a formula applicable to all lessons, as Mr. Jones has done, argues a shallowness which we are surprised to find in a certificated teacher.

We have felt it to be our duty to remark at some length on the errors of principle into which Mr. Jones has fallen, because they are calculated to give a false direction to the exertions of those teachers who have not been well grounded in method. There are, however, a few blemishes of detail, which we cannot pass over.

At p. 3, the word 'arbitrary' is used instead of 'obligatory.'

At p. 15, we find, as an instance of *feigned* repentance, the case of "Judas, who repented and hung himself." We should have thought the latter circumstance a sufficient proof of the sincerity of his sentiments, such as they were; and it is uncertain, as Mr. Jones expresses himself, whether he means that Judas did or did not repent. But we fancy that the idea which Mr. Jones intended to express is, that the erring apostle felt only one part of repentance—"sorrow for sin," but not the determination to lead a new life,—the faith in the mercy of God, and the prayerful confession of his guilt, which might have saved him from the divine wrath. This is a serious blemish in a lesson on such an important point of practical religion.

At p. 75 we find it stated that "Saul, in the original, signifies *death, hell,* and is probably indicative of his character previous to his conversion." For our part we can see no probability of the kind, but a considerable degree of absurdity in the supposition.

Lastly, we must take exception to the selection of the notes of lesson given as models. There are too many of a purely liturgical character, and we do not see the utility of the lesson on the punishments of the Jews, unless there be such a thing as a class composed of juvenile executioners.

Agamemnon of Æschylus. Translated by W. Blew, M.A. Pp. 266. London: Longmans.

The value of translations, whether as an aid to scholarship, or as a vehicle for imparting to the non-classical reader some idea of the character of ancient literature, is undoubted. We speak, of course, of translations of a high order, which aim at a transfer of the *spirit* as well as of the body of the original, so that it shall sound to the modern ear with all the freshness and vivacity of a new composition. In this class we unhesitatingly place Mr. Blew's version of "King Agamemnon," which combines the merit of faithfulness—a free and unservile faithfulness—with much of the novelty of a modern poem.

Mr. Blew discusses, in rather a lengthy preface, some of the moot points of the art of translation. We will not follow him in the discussion, but merely state the two most important conclusions at which he arrives, and which he illustrates in his own work: the first regards the rendering of the dialogue, for which he adopts the ten-syllabled *rhymed* couplet, in preference to blank verse; the second regards the choruses, which he preserves in their original form as to the exact correspondence and equipoise of strophe and antistrophe. We confess ourselves, as yet, unconvinced by his arguments on either of these two points; but these are questions of taste, which we leave to the judgment of individual readers.

The translation occupies about a hundred pages, and the remainder of the volume consists of notes and illustrations, the latter chiefly from

modern poetry. Mr. Blew follows Paley's edition of Æschylus as his text-book.

We subjoin, as a specimen, extracts from the speech of Clytemnestra: vv. 855—876, 895—903.

"Men, townsmen, Argos' present elderhood,
I blush not, this mine husband-loving mood,
To vouch before you; for a slavish fear,
And dread from man, in time away doth wear;
Taught not by others, of myself I tell
How that my life was scantly bearable,
So long as this man under Ilion lay;
For that a woman, with her lord away,
Should sit at home, all lone and desolate,
Racked by contrarient rumours of his fate,
Were a great woe—beyond endurance great:
First one, then another, came with news for home,
All with ill news, and each with heavier doom;
For if my lord as fast his wounds had met
As homeward-bound the stream of tidings set,
He drilled had been more throughly than a net;
But had he died as rife the rumours came,
A second Geryon, with a threefold frame,
His boast had been, in upper air, that he—
I speak not of his nether panopoly—
Had many a triple vest of earth put on,
Shapes manifold, once dying in each one.
And for these rumours, varying thus and sad,
Oft, from above, this neck suspension had;
But oft would others—kindly cruel—loose
From mine unwilling neck the straightened noose."

"And now her burden borne, her suffering past,
Here my soul's homage of my lord thou hast:
Faithful—as dog when folds are lone and dark;
Staunch—as the mainstay of the gallant bark;
Sure—as the shaft that lifts the roof-tree's heights;
Dear—as the boy his father's one delight;
Bright—as to shipmen shines the unlooked-for shore;
Fair day-spring—fairest when the storm is o'er;
Fount of refreshing, whose sweet waters bless
The parch'd wayfarer in the wilderness
Is he.—To 'scape constraint's hard stress is sweet,
And thus with fond address my lord I greet."

The Alcestis of Euripides. Pp. 62. Oxford: J. H. Parker.

Another number of the admirable series of the Oxford Pocket Classics, texts, with short notes. Having had occasion already to speak in terms of high commendation of this series, both as regards substance and execution, we need now say no more than that the present Number confirms us in our opinion.

A Construing Book. By the Rev. E. Thring, M.A. Pp. 103. Cambridge: Macmillan.

The compiler of this work very properly asserts, that languages may be, and ought to be, taught by an explanation of principles, rather than by bare rules. We quite agree with him: the *rule* appeals to mere obedience: the *principle* appeals to the understanding: when once the principle is mastered, the application is comparatively easy. For instance, it is one thing to teach a boy by rule that *do*, *præbeo*, and other verbs of *giving*, govern a dative: it is another thing to explain why that particular inflection is used, as in p. 23 of this work—"The dative case denotes broadly, nearness to, at; as, 'Frigus præbes tauris:' the gift stopping at the receiver."

The "Construing Book" is compiled with a view to this system of teaching. The sentence is gradually built up under the eye of the pupil, the various stages being duly explained as they occur. The sentences selected for this purpose, are culled from the Latin poets, Ovid, Virgil, and Horace. We question whether the passages are sufficiently graduated: they appear to be too advanced for the junior classes.

Elementary Treatise on Mechanics. By S. Parkinson, B.D., Fellow and Tutor of St. John's College, Cambridge. Pp. 288. Cambridge: Macmillan, 1855.

Mr. Parkinson's object in adding another to the gradually increasing stream which has flowed from the days when "Wood's Mechanics" first emerged from the ever-labouring brain of that doughty old Johnian, is that of presenting a suitable volume for junior classes in the universities, and the higher classes in schools. This has been effected very fairly, and the book, as far as it goes, usefully and lucidly performs its task. But there is an attempt to go beyond it, and the chapter on dynamics is a failure—as all attempts to explain curvilinear motion must be which discard the use of the differential calculus. The geometrical expositions are anything but "tolerably simple;" they are to our apprehension all but unintelligible. The best part of the book is that which treats of statics. The mechanical powers are remarkably well described, and the problems excellent.

History of Ancient Greece. Pp. 350. Chambers: London and Edinburgh.

Precisely that for which the author of this Condensation of Greek History takes credit for in his preface, is in our opinion the fault of his work. It is nothing but a narrative of facts. He condemns, not very civilly, in Bishop Thirlwall, that merit which he has certainly most faithfully avoided, namely, that it is "more a dissertation on the history than the history itself." This is just what new books on history ought to be. The facts already given *usque ad nauseam* in all kinds of histories should be made the text of lively instruction, and philosophical historical essays. Mr. Grote's book is held to be superior to the Bishop's—"more full and satisfactory as to the delineation of facts and characters." "The leading features of the history" of Greece have indeed been brought out, and very correctly, and in their right order and proportions, *but nothing else has;* and we cannot praise books of history written in

this very dry and unpalatable manner. They should suggest thoughts and not rest satisfied with narrating facts.

Palæstra stili Latini, or Materials for Translation into Latin prose. By Benjamin Hall Kennedy, D.D., Prebendary of Lichfield. Pp. 412. London: Longmans, 1855.

This book consists of extracts taken from all kinds of works; the compiler says from "the best prose authors, ample in number, various in style, instructive in matter, and gradually advancing in difficulty." In the first place, they are only from some of the best writers, and certainly a collection which, omitting Warburton, De Foe, Sir Thomas Brown, Latimer, William Cobbett, and Junius, culls from Mayo, Abeken, Bolton, "Bozzy," and a lot of anonymous miscellaneous MS., has very little pretension to the credit of completeness. There are, however, out of the 676 extracts in the book, some very good ones for the purpose. The author would have better answered his end of gradually increasing the difficulty of those passages for translation, had he commenced chiefly with those which were themselves translations from Latin authors; these are generally the easiest, and they possess the advantage of a key to the accuracy of the translation when done.

The matter is not always instructive, and sometimes very objectionable. Addison's nonsense, for example, that a charge of telling a lie, *even in jest*, can only be expiated by blood, ought not to have obtained a place in any collection which purports to go into the hands of young people. Very many, however, of the extracts convey useful knowledge and sound morals, and are unexceptionable.

Walford's Classical Cards. Nos. I. and II. London: Longmans.

These cards present to the eye at a single glance the elements of Latin and Greek accidence; the inflections of nouns, pronouns, and verbs; in short, all that is required for the ordinary formation of cases, tenses, &c. For the purpose of reference, they will be found very valuable, so much time being usually lost in turning over the pages of a grammar before the particular subject required is discovered.

The Life of Alderman Kelly. By the Rev. R. C. Fell. Groombridge: London.

This is a narrative of the private and official life of a very good man, who, like many others, have risen from a humble position to the lord mayoralty of London. He seems to have been a religious and industrious man.

Handbook of Natural Philosophy. By Dion. Lardner, D.C.L. Pp. 408.

This volume embraces the interesting subjects of hydrostatics, pneumatics, and heat, and most ably and popularly are they treated. We have seldom, if ever, seen scientific subjects so successfully presented to ordinary intelligence, and so thoroughly divested of all technical hindrances to its comprehension. The work is beautifully got up, and well and carefully illustrated by woodcuts.

LITTLE BOOKS.

Horace; Epistles and Ars Poetica.—Latin Texts, with Notes. (Oxford and London: J. H. & J. Parker.) Another most accurate and well-noted Edition of this favourite poet. The Notes to this are the best that we have yet seen. The parallel passages, *alias* plagiarisms, of Pope and Dryden, forming the *Ars Poetica*, are not forgotten; and apart from the critical matter, they contain illustrations and comments which add vastly to the interest of the text. We wish that the very spirited publishers would direct the printer to bestow a separate paragraph to each note; they really deserve such distinction,—and the reader probably will agree, that he deserves this facility likewise.

Euripides. Greek Texts, with Notes. (London and Oxford: J. H. Parker, 1855.) This is also an accurate edition, and the Notes are learned, and well adapted to aid the reader without exempting him from the necessity of research and study.

The British Workman.—The Band of Hope Review and Almanack.—The Sunday-School Union Class-Books. These are all good, the latter especially so. Round the Almanack are arranged some very useful hints.

First Lessons in Rational Arithmetic. By W. Hardcastle. Teacher's copy, pp. 125; Pupil's, pp. 73. (London: Relfe, 1852.) This is a useful little book, as far as it goes; and to some teachers, who have not the faculty of framing questions out of their own heads, must be invaluable. We would recommend the author to bring out another edition, and to go beyond the four rules of addition, subtraction, multiplication, and division.

Ettling's Drawing-room Atlas of Europe. Pp. 16. (London: Longmans, 1855.)
School Atlas of Physical Geography. Pp. 136. London: National Society's Repository, 1855.

Mr. Ettling has compiled, in this Drawing-room Atlas, a remarkably useful and prettily-got-up volume. The maps are well printed and prettily coloured, and that of the British Isles contains the population as taken from the census of 1851, and also gives that of the larger towns and cities separately.

The National Society have done well in binding together their School Atlas of Physical Geography, at the commencement of which is a most useful description of each map.

Parker's Church Calendar and General Almanack for 1856. (London and Oxford: J. H. Parker.) This is good in its way, and what it contains is accurate; but omissions have been made which had better not have occurred; for instance, the list of Training Institutions is imperfect, for if any are mentioned, why leave out the Carnarvon, Culham, Home and Colonial, and Stapleton, and insert Kneller Hall, which was just about to close when the Calendar went to press. Much useful matter is also not given which might have been more appropriately inserted than the list of the House of Commons on the probable eve of a dissolution, or the account of the Funded Debt.

Statistic View of the Population, Religions, and Languages of Europe, Transcaucasia, and Turkey in Asia, in 1855. By Ed. Ravenstein. Pp. 16. (London: Stanford.) These maps are nicely coloured, and the printing well executed. The first is called the Population Map of Europe, in which the shading exhibits the various degrees of density of the population in the European States, and all towns with more than 50,000 inhabitants are represented with black spots.

The second is called the Nationalities Map, and instead of the countries being designated by their names, they are marked thus—English, Welsh, Irish, Spaniards, French, Dutch, Flemish, Wends, &c. &c., and on p. 9, are given the numbers of each nation divided into two groups.

The third, called the Religion Map of Europe, is coloured in six different ways, which colouring enables us to see at a glance what religion predominates in each country, each religion having its own peculiar colour: thus, the Protestants are painted red; the Heathen, blue; Armenians, striped red and white; Greek Church, yellow; Roman Catholics, lilac; and Mahomedans, green. And there is an Arithmetical Table of the numbers of each religion in the different quarters of the globe.

Du Style et de la Composition Littéraire. Par Monsieur Antonia Roche. (Paris: Delalaiu. London: Longmans.) Pp. 243. 1856. This book is evidently a work of great merit, but we must delay our notice of it till a future occasion.

Catechism of Practical Agriculture. By Henry Stephens, F.R.S.E. Pp. 76. (London and Edinburgh: Blackwood, 1855.) A very good work, arranged in questions and answers, and conveys a great deal of useful information, both for boys going out into farm-service and for girls learning dairy work. There are nice woodcuts with all the usual farming implements, cattle-roots, &c. The chief objections we have to the book are, first, that it is in the catechetical form; secondly, that it is too terse, and too entirely in the affirmative. As regards the first objection, useful space is lost, and repetition incurred; *ex. gr.*:—"*Of what form is the plunge-churn?*" "A plunge churn is an upright cylinder of wood with a flat plunger," &c. &c. Now, in the first place, what occasion is there to ask the prefatory question? It is answered twice over, first in words, and secondly by a woodcut, and thirdly, by the explanation of the woodcut. Is this not enough? This book is made catechetical purely in order to make it a catechism, and a large amount of italic is thus utterly wasted. The second objection is a still more serious one, but the book omits the mention of prevalent mistakes and blunders in farming operations, and which it is so necessary to put people on their guard against. We hope there will soon be a new edition, for the book is meritorious and well worth revision and a second edition.

Excelsior: Reading made easy. By George Vasey. Pp. 64. (London: F. Pitman, 1855.) This is a nice little book, with much useful information.

The Governess. (London: Darton.) Some of the more practical papers in this monthly magazine are useful. There are others which are less unobjectionable. There is an attack on Gleig's Series of School Books, in which the system of writing school books by H. M. Inspectors under the Committee of Council is condemned as jobbery, and actual "peculation" is impliedly imputed to them. The Editor ought to know that Mr. Gleig, in the first place, is not one of H. M. Inspectors of Schools, or under the Committee of Council at all. Gleig's Series, published by Messrs. Longmans, and notoriously written by a variety of highly-esteemed school authors, are, not very fairly, depreciated on the strength of some errors and inaccuracies of style, which have been discovered in one only of these numerous publications. "The Governess" would probably think it not a little harsh to condemn that publication for its wretched style and bad English Grammar, simply because such a passage as this can be quoted *verbatim*, as we give it, from one of its articles:—

"Or take an example from earlier life. Poor little Harry has been sitting in mournful silence for the last half-hour. He is engaged with that pleasant and interesting subject, the Multiplication Table. It is his first essay, and he has to learn by rote from once times one to eight times eight. He says he has said it over to himself a million times, but he don't know it now. If you dodge him he turns pale, and either madly shoots wide of the mark or is silent. But suppose the introduction to have taken place under other auspices: a piece of chalk, a black board, and ten minutes' lively chat thereon, a dozen or two * * * or 0 0 0 0, and a few changes of position, will bring back the colour to his cheek, the light into his eyes, and hope into his heart. He will find that he has got a memory after all."

SERIALS.

Chambers' Educational Course; History of Ancient Greece; Tales for Young Men; Windycote Hall.

Question and Answer.

MUSICAL NOTATION.—What is the origin of the use of the names of the notes in music?—*P.X.Q.*

Answer.—The French were first used by Guido, and were taken by him from a hymn of Paulus Diaconus to St. John the Baptist; the words were—

Ut queant laxis
Re-sonare fibris
Mi-ra gestorum
Fa-muli tuorum
Sol-ve polluti
La-bii reatum,
Sa-ncte Johannes.

In which these syllables are the first of each hemistich. Instead of *ut* the Italians have adopted *do*, as being of a softer sound, and the seventh of the scale was not named until it received its appellation, *si*, from a French teacher named Le Maire, in the beginning of the seventeenth century.

Intelligence.

UNITED ASSOCIATION OF SCHOOLMASTERS, 1855.

Abstract of the Report of the Acting Committee, read at the Annual Meeting, 27th December.

THE Acting Committee were able to state at the last Annual Meeting, that the first year of the existence of the Association had been a period of steady natural growth, such as to give promise of a healthy and vigorous development with the course of time. They have now the pleasure to report, that the second year has been marked by a similar progress, and that therefore their anticipation has been so far fulfilled.

Members. During the past year there has been an accession of nearly fifty new members, while there have been remarkably few cases of falling off. The Association now numbers about 250 members, of whom 100 reside in or near the Metropolis, and the main body of the others in various parts of England, Wales, and Scotland; but they have also the pleasure to count among their associates teachers residing in the Channel Islands, and in the distant Colonies, and one French Schoolmaster residing in Paris.

Local Associations in Union.—A Branch Association has been established at Staines, and it is hoped that others will be formed in many parts of the country, as it is mainly by the establishment of such associations that the realization of the original scheme of the Institution can be effected.

Finances.—Besides the expenses incurred during the year, the Committee has been enabled to pay £16 off the debt of £40 which they had to report at the last Anniversary Meeting. They have to mention with special commendation the exertions of Mr. John Drage, Master of the Croydon British School, on behalf of the Association. The fact that the Committee have been unable to clear off the whole of the debt has induced them to come to the conclusion, that though it is desirable to obtain, and reasonable to expect, pecuniary support, yet the stability and success of the Institution should not be jeopardized by being made to depend in any measure on such precarious and fortuitous aid; they consider that the only secure and satisfactory basis on which the Society can rest is that of self-support. This opinion has been confirmed by the views and feelings which many of the members have expressed to them in reply to their calls for the collection of funds; they accordingly recommend, that the annual subscription of membership should be raised, from half-a-crown to five shillings in the case of Schoolmasters, and from one shilling to half-a-crown in the case of Schoolmistresses. The subscription is due on the first day of the year, and the change can therefore conveniently take place forthwith, if the Meeting should adopt the recommendation. The Committee are anxious, however, that a special effort should be made on this occasion to liquidate the present deficit of £24; if this be done, they undertake to supply the members, free of expense, with printed copies of the lectures and addresses delivered before the Association at the annual and other general meetings, so far as the funds at their disposal shall enable them. Mr. Baker, the author of the "Circle of Knowledge," offers to make one of twelve, or one of twenty, *of the members,* to contribute a twelfth or a twentieth of the debt now due, providing the Association can be made in future self-supporting by its subscriptions.

Library.—The want of funds has continued to prevent the Committee from carrying into execution the project of a permanent exhibition of School Books and Apparatus. The difficulty is, to provide a suitable place in which to exhibit them; the Committee are not without hope, however, that the managers of some one of the London schools may be able to grant the use of a room for the purpose, as a temporary arrangement. On the subject of School Books, the Kent and Sussex Schoolmasters' Association has submitted to the Committee a resolution, which they have forwarded to the other Associations in union, but without receiving any reply; it is to the effect, "That the interests of Education, and justice to authors of School Books, and to the Bookselling Trade, require either that the Government Schedules be revised (with a view to supply some omissions), and other books of known merit placed on them; or that Book Grants be made irrespective of a prescribed List."

General Meetings.—To increase the efficiency of the Association, the Committee lately decided on holding Monthly General Meetings for the reading of Papers and the giving of Model Lessons. Two meetings have accordingly been held, at which Papers have been read by the President and by Mr. Shepherd respectively. The Committee recommend that such meetings should be regularly held for the future; but that, as a necessary arrangement, the Association should hold an Annual Session, extending from September to May inclusive, for both General and Committee Meetings.

THE CHRISTMAS EXAMINATIONS of School Teachers and Students have been unusually well attended, and the papers, of which we shall give some specimens, are on the whole excellent.

THE DEAN OF HEREFORD has given a stirring Address on Education to the Huddersfield Mechanics' Institution, attended by 1,000 persons.

TEACHERS HOLDING UNION SCHOOL CERTIFICATES OF COMPETENCY AND EFFICIENCY, having served three years, are now to be admitted as Queen Scholars to training-schools.

THE SCOTTISH EDUCATIONAL *Journal* has terminated an able and useful career, to the great discredit of those who ought to have appreciated its value.

EDUCATIONAL BOOKS PUBLISHED IN DECEMBER.

Æschylus' Tragedies. Re-edited, with English Commentary, by F. A. Paley. 8vo. Whittaker & Co.
Aristotle: the Politics. With English Notes by R. Congreve. 8vo. J. W. Parker.
Aristotle: the Politics. With English Notes by W. C. Eaton. 8vo. Longmans.
Horace: Odes and Epodes. With Notes by Young. 12mo. Weale.
Quintilian's Institutes of Oratory. Translated. 8vo. Bohn.
Liddell and Scott's Greek Lexicon Abridged. Fifth Edition, 12mo. cloth. J. H. & Jas. Parker.
Kennedy's Palæstra Stili Latini. 12mo. Longmans.
Walford's Greek Accidence, on a Card. 8vo. Longmans.
Walford's Latin Accidence, on a Card. 8vo. Longmans.
Walford's Latin Prosody, on a Card. 8vo. Longmans.
Woodford's Table of Latin Verbs. Simpkin & Co.
Geddes' Greek Grammar. 12mo. Simpkin & Co.
Habersak's Conversational French Phrases. 16mo. Theobald.
French in a Fortnight. 12mo. sewed. Groombridge.
Oake's Essence of French Grammar. 12mo. Hamilton & Co.
Bernstein's German Reader. Third Edition, 12mo. Williams & Norgate.
Faris's Practical Grammar of the Arabic Language. 12mo. Quaritch.
Muller's Languages of the Seat of War. Second Edition, 12mo. Williams & Norgate.
Michod's Orthographic Aids. 8vo. Longmans.
Liddell's History of Rome. 2 vols. 8vo. Murray.
Blew's Agamemnon of Æschylus. Longmans.
Thring's Construing Book. Bell.
Barrett's Propositions in Mechanics. Bell.
Woodmass's First, Second, and Third Books of Euclid. Bell.
Fischel's German Reading-Book. Nutt.
Smith's History of Greece. New Edition. Murray.

Notices.

Mr. Tilleard's Introductory Article on the Study of Music, the Index and Title-page of Vol. IX., several Letters, Questions and Answers, and Notes of Books, are reluctantly postponed till our next number, owing to press of matter and advertisements.

*** We again particularly beg that letters relating either to *advertisements* or business, as well as orders, be directed *not* to the Editor, but to our Publishers, MESSRS. GROOMBRIDGE, and so to reach them a full week before publication.

ON MUSIC AS A BRANCH OF NATIONAL EDUCATION.

By J. Tilleard, Esq., F.R.G.S.

INTRODUCTORY.

THE state of the cultivation of music in a nation is a pretty good index to the degree of civilization which it has attained.

Music as an art is almost entirely the creation of modern times. The ancients knew a good deal about it as a science; but their actual performance must have been rude, if not barbarous. Even their scientific knowledge was confined to one half of music's domain, namely to melody. Of the "concord of sweet sounds," they appear to have had no notion, beyond such a vague general one as an untutored person might derive from listening to the wild irregular harmony of an Eolian lyre, or from hearing two or more accordant notes sounded together in any other chance manner. It is probable that they knew just the bare fact, that some sounds would harmonize, although some writers would deny to them even this amount of acquaintance with the "hidden soul of harmony." Be this as it may, there is no doubt that musical harmony, as we now understand it, has not been known to the world much more than a thousand years; and the development of both melody and harmony has been chiefly the work of the last three centuries. And to what a pinnacle of perfection have they now been raised! What a contrast between the music of the present day and the music (so called) of ancient times! Let any one who has listened with rapture to the finished performance of an oratorio or an opera, cast his imagination back for a moment, and endeavour to realize what may have been the effect of the slashing and banging of instruments, and the dismal wailing or boisterous shouting of voices, which seem to have made up the entertainment at those ancient concerts. Even the reedy squeaks and brassy blasts of the most disunited German band, or the raspy grindings of the most disorganized Italian organ that ever sent a would-be-quiet Cockney complaining to the *Times*, are superior to anything the ancients ever heard, except, perhaps, the music of the spheres, of which we never had an opportunity of judging.

> "Strange that such difference should be
> 'Twixt tweedle-dum and tweedle-dee."

The fact is, we have very little that is like the music of the ancients. If we would get a complete notion of it, we must go away from home and from European civilization altogether, to Turkey, or Hindostan, or, farther and better still, to China—that is, we must go to some half-civilized nation. But such a journey for such a purpose is hardly worth undertaking, and so we must be content with only an imperfect practical acquaintance with the really startling effects which must have been produced by the ancient music.

But the music of the present day (we do not allude to "Villikins and his Dinah," nor yet to the "Ratcatcher's Daughter"), what a store of pure enjoyment does it contain! It is delightful even to call up the memory of the good music which one may have enjoyed; the sublime strains of oratorios, masses, and anthems; the dramatic and descriptive effects of operas and secular cantatas; the feast of sounds in grand symphonies and instrumental quartetts and concertos; the solemn tones

and severe purity of the ecclesiastical chant or psalm-tune; the ringing peal of the light and joyous glee or part-song, sung by youths and maidens; and last, but not least, the sweet carolling of the pure angelic voices of children in the simple hymn or song. Age after age will derive enjoyment from the store of good music already accumulated. Age after age will come within the sphere of its ennobling influence. What a blessed means is here for elevating and refining the human race! And its influence must spread more and more in each succeeding age, for two reasons: first, because the action of music and refinement are reciprocal,—the more refined men become, the more they love music, and the more they love music, the more refined they become; second, because the taste for music "makes what it feeds on," in which there is again a reciprocal action.

The refining tendency of music is universally acknowledged, as a matter of experience. "One of the most pure and innocent pleasures which we can enjoy," says Sturm, "we owe to music. It possesses the power of charming our ears, soothing our passions, affecting our hearts, and influencing our propensities. How often has music dissipated our gloom, quickened the vital spirits, and ennobled our sentiments!" Luther says: "Music is a half discipline and schoolmistress, that maketh people more gentle and meek-minded, more modest and understanding. The youth ought to be brought up and accustomed to this art, for it maketh fine and expert people." And of singing, in particular, he says: "Singing is the best art and practice: it hath nothing to do with the affairs of this world: it is not for the Law; neither are singers full of cares, but merry; they drive away sorrow and care with singing." "The interim of convenient rest before meat," says Milton, "may, both with profit and delight, be taken up in recreating and composing the travailed spirits with the solemn and divine harmonies of music, heard or learned; either whilst the skilful organist plies his grave and fancied descant in lofty fugues, or the whole symphony, with artful and unimaginable touches, adorn and grace the well-studied chords of some choice composer; sometimes the lute or soft organ stop waiting on elegant voices, either to religious, martial, or civil ditties; which, if wise men and prophets be not extremely out, have a great power over dispositions and manners, to smooth and make them gentle from rustic harshness and distempered passions."

The reason why music exalts and purifies the heart seems to be, that it completely fixes and enchains the attention. It is not satisfied with a divided homage, but must have, for the time, an entire surrender of the heart to its influence. While a person of musical taste is listening to the performance of good music, and more especially when he is joining in the performance himself, there is no scope for the play of the passions; they are quite subdued, and it is impossible for him to entertain improper feelings or thoughts. To listen to music is, in fact, an act of contemplation, which is the most ennobling exercise in which the human mind can engage. And all acts of contemplation require, as a first condition, that we should thoroughly divest the mind of all thoughts concerning anything else but the object which it is to contemplate. When the mind is thus at rest, but not before, it is prepared to perceive the beauty of the object on which it is fixed. Thus we cannot enjoy the beauties of a painting, a statue, an architectural

structure, a poem, or a piece of music, without laying the passions, disciplining the thoughts, and banishing from us earthly affections and considerations. This is one cause of the ennobling influence of contemplation. The other is the improvement which the contemplation of beauty of any kind confers upon the mind. Such contemplation is one great element of our spiritual growth. The faculties which are taken up in the exercise are the highest of our nature. The improvement conferred varies with the kind of beauty which we contemplate, rising higher and higher in proportion as our view rises from earthly things and approaches heavenly, until it reaches its highest pinnacle in pure spiritual contemplation. It is wisely and beneficently ordained, that the exercise of our faculties shall afford us pleasure; and it is obvious, from the foregoing considerations, that the pleasure afforded by the exercise of the higher faculties of our nature is of the purest, most innocent, and most elevating character. Thus, then, to descend from the general to the particular, there must be a certain degree of previous refinement before a man will cultivate music; but the more he cultivates music, the more will his refinement increase. The whole philosophy is contained in the well-known but (in Leigh Hunt's phrase) never-to-be-too-often-quoted lines of our great bard, which have left nothing for other poets to say on the same subject:—

> "*Jessica.* I am never merry, when I hear sweet music.
> *Lorenzo.* The reason is, your spirits are attentive:
> For do but note a wild and wanton herd,
> Or race of youthful and unhandled colts,
> Fetching mad bounds, bellowing, and neighing loud,
> Which is the hot condition of their blood;
> If they but hear perchance a trumpet sound,
> Or any air of music touch their ears,
> You shall perceive them make a mutual stand,
> Their savage eyes turned to a modest gaze
> By the sweet power of music. Therefore the poet
> Did feign that Orpheus drew trees, stones, and floods;
> Since nought so stockish, hard, and full of rage,
> But music, for the time, doth change his nature.
> The man that hath no music in himself,
> Nor is not moved with concord of sweet sounds,
> Is fit for treasons, stratagems, and spoils:
> The motions of his spirit are dull as night,
> And his affections dark as Erebus:
> Let no such man be trusted."

The second reason which we gave was, because the taste for music "makes what it feeds on." And so it is with all the fine arts, and indeed with every manifestation of the beautiful, the good, the true, and the noble, whether in works of nature or art, or in human conduct. Every lovely work of nature or art, every instance of upright, noble, or heroic conduct, contemplated with just admiration, heightens our sense of natural, artistic, or moral beauty. But by a law of our nature, we seek to reproduce in ourselves, or in particular external forms, whatever general conceptions enter the mind. This great law was first clearly expounded by Dr. Becker, who applied it more particularly in the case

of language, and who, by establishing it, struck a deadly blow at the modern German philosophy, which had lost itself in the pursuit of the abstract, as the highest perfection of thought. Thus, the musical works already produced, by fostering musical taste, will give rise to the production of other works, and, in this manner, the taste for music will continually be extended over larger and larger surfaces. Thus music, by administering to our enjoyment and improvement, contributes to its own increase. This general law, by which like begets like, is a great and wise provision for the intellectual, moral, and spiritual elevation of the human race. Some persons doubt the possibility of the indefinite creation of new music. But we may convince ourselves on this point by making a mathematical calculation of the permutations possible in any one scale of eight notes, not to go any further.

We have shown, then, that the influence of music will spread wider and wider in each succeeding generation, as civilization advances. Now, let us transfer our view of the progress of music from the future into the past, and apply to particular nations what we have stated in a general sense. We then perceive that the state of the cultivation of music among any nation is a tolerably good criterion of that nation's civilization. Whenever we find the love and pursuit of the art generally diffused among a people, we may safely conclude that a certain degree of refinement and amenity of life and manners, though it may not be a very high one, is also generally diffused.

The Germanic nations of the European continent are those most distinguished for the cultivation of music; and it is among these nations that education and refinement are most widely diffused. And here also we have the most striking exemplification of the reciprocal influence of cultivation and production, in the musical art. From these nations have sprung all the greatest geniuses that have contributed to the world's stock of music, that brilliant constellation of stars of the first magnitude,—Mozart, Beethoven, Handel, Haydn, Gluck, Bach, Weber, and Mendelssohn. It is indeed no small reward for the pursuit of music that the Germans are able to claim as their countrymen these bright ornaments of the human race, who have provided such a store of the means of refined enjoyment and improvement for their fellow-men in all ages.

The Italians stand next to the Germans for the love and pursuit of music. The case of this nation is highly remarkable. The Italians, at one period, stood at the head of the civilization of the world; their commerce was the most extensive, and laid the foundations of the present vast commercial intercourse of the world; their enterprize was the highest, and led to the discovery of the New World; their literature furnished models for the literatures of all the other European nations; and their country was the home of the arts of painting, sculpture, and music. And it was not the first, but the second time that Italy had occupied this distinguished and honourable position. It was but a revival of the glory and splendour which she had possessed in former days, when she was mistress of the world. For a long time, she maintained her rank as foremost among the nations in the cultivation of music. Italy was, indeed, during a great part of the time, almost the only country in which music was cultivated at all as a regular art and science, and Italian music gave the first impulse to the musical taste of

other European nations, and supplied the models for nearly all the regular species of musical composition which have hitherto been developed,—the oratorio, the opera, the cantata, the symphony, the mass, the instrumental quartett and concerto, the anthem (in the motett), and the glee or part song (in the madrigal). Why, then, have the Italians not maintained the foremost rank among nations in music? For the same reason that they have not maintained their rank in any other respect. Their civilization has been checked and thrown back in its growth by the depressing and desolating blights of political and spiritual despotism. This adverse influence has prevented that diffusion of education and refinement among the people of Italy, which was necessary to enable them to keep their advanced position in the march of civilization; and meanwhile, other nations, more favourably situated, have made great progress, and the relative positions have been somewhat altered. Still, despite this loss of ground, Italy has been surpassed in music by only one nation. This is a significant fact. It shows that though several other nations have shot a-head of the Italians in partial numbers and in particular paths, yet, as regards the progress of the great bulk of the inhabitants in general refinement, Italy ranks only second even now. It shows that the tough old roots of European civilization are still alive, and not dead, as some have supposed, and that they only require the ground, which has oppressed and clogged instead of nourishing them, to be somewhat loosened, and the genial influences of warmth, moisture, and air to be let in, in order that they may thrive again as well as ever, and send up fresh and vigorous shoots around the old parent stem. Thus all that civil and religious oppression could do has not been able to destroy Italian civilization: so great is the vitality and tenacity of civilization, when it is once firmly rooted in the soil. At the same time it must be borne in mind that the Church, in Italy, as in other Roman Catholic countries, while she has kept down the civilization from which the fine arts naturally spring, has endeavoured to give them a separate existence, and to enlist them in her own service; and that the civil governors of several of the states have frequently acted in a similar manner—fostering the branches while they were striking deadly blows at the roots. The Church does not seem, latterly at least, to have effected her object in regard to music, for all the great composers whom Italy has produced in recent times—Rossini, Donizetti, Bellini—have written almost exclusively for the theatre, scarcely at all for the Church. This is probably only a reaction of the rigorous character of the observances which she requires, as the tendency to scepticism among the people is a reaction of the superstition on which those observances are based. It is somewhat remarkable that the nation that has outstript Italy in diffused refinement, should be the very same whose barbarism deluged the earlier Italian civilization.

The French rank third as a musical nation. Next to Germany and Italy there is no country in which musical taste and skill are so generally diffused among the people, no country which has produced so great composers as France. The French have long been known as a musical people. The South of France was the native home of those wandering minstrels, the Troubadours, who were the first to spread a taste for poetry and music in Europe, and ever since their time the French have been famous for their gay *chansons*. They also appreciate music of a

more scientific character, and are skilful in its performance. Though they have not yet given to the world a Beethoven or a Rossini, they can claim such distinguished names as Méhul, Herold, Halévy, Félicien David, and Berlioz. Besides which, the French have been the greatest patrons of the musical talent of Germany and Italy, which they have ever been ready to recognize and honour, even when it has been ignored or neglected in the land of its birth (as talent sometimes will be). They have fostered the genius of some of the greatest musicians of those two renowned musical countries—Gluck, Mozart, Meyerbeer, Paer, Spontini, Cherubini, Rossini, and Bellini. They may justly be proud of having patronized men like these; it gives them a share in the honour of their names. Genius sheds a lustre not only over the land which gives it birth, but over all lands in which it meets appreciation. Next to the man who has genius himself is the man who can recognize genius in others.

These facts proclaim (what we otherwise know to be true) that a large amount of refinement is widely diffused among the French nation. But their music is one-sided, and so is their civilization. They cultivate the secular side of music, in a greatly preponderating degree. They have only one celebrated sacred composer (Méhul), and only one celebrated sacred oratorio (Joseph), and that, we believe, is very rarely performed, except in small portions. The music of the Church is almost exclusively of foreign origin. The name of no French composer is known in connection with mass-music, nor have we ever seen any evidences that the French possess a peculiar church-music. The French musicians are mainly opera composers; and the opera is the species of music mainly pursued by the French people. The sacred side of French musical cultivation is thus defective; there is a want of that depth and seriousness of feeling which finds its appropriate expression in sacred music: and such we know to be the case with French cultivation generally. Now, Germany and Italy are great in both sacred and secular music, though there is a slight preponderance towards sacred in the former and towards secular in the latter, corresponding to the respective characters of the two nations, as at present developed. But France is great only in one species, and that the less dignified of the two; and in that species she is not *so* great as either Germany or Italy. France, accordingly, ranks third in music; and if we have interpreted the significance of the fact rightly, she also ranks third in general culture.

We shall next consider the condition of musical education in our own country. But, as our object is to do something for the improvement of that condition, we shall require to review it more fully than we are able to do on the present occasion, and must therefore defer the consideration of the subject to another article, which will appear in the next number of this Journal.

GUIDANCE OF THE TONGUE.—He that cannot refrain from much speaking is like a city without walls: and less pains in the world a man cannot take than to hold his tongue. Therefore, if thou observest this rule in all assemblies, thou shalt seldom err. Restrain thy choler, hearken much, and speak little: for the tongue is the instrument of the greatest good and greatest evil that is done in the world.—*Raleigh.*

PRACTICAL HINTS FOR SCRIPTURE LESSONS.—No. 2.

THERE is, especially on the west side of the kingdom, too much proneness, in many schools, to teach children, and very young ones too, the Old Testament before the New. This is wrong, for however inestimable that vast store of historical truth and marvellous record of God's dealings with the early peoples of the world, the great truths of Christianity surely are to be taught first; and it is not enough to teach these by dogmas and sententious axioms; we should early acquaint the child with, and impress on his mind, the lifelike pictures which, in His divine wisdom, Jesus gave to man as the mode of revelation. His manner of teaching cannot be too closely followed: we do not follow it; on the contrary, we very widely depart from it, when we set aside the words in which our blessed Lord spoke and taught; substituting human paraphrases, and postponing his parables and precepts, the epistolary doctrines of the Holy Apostles, and the pictorial narratives of His and their lives and deaths, for the reading of the Pentateuch. We have sometimes found little children reading the book of Genesis or Deuteronomy, who had no definite notion how Christ saves sinners, or of the duty taught by the commonest parable. This is the old blunder—poising the pyramid on its apex, and turning instruction upside down. It is not thus that our "babes and sucklings" can be taught to know God and do His will. A very good plan is that of following the order of events in the New Testament; illustrating them, where required, by brief references to *old* Testament facts. The birth of our Lord being fully impressed on the child's mind, with all its attendant facts, and the prophecies bearing directly on and fulfilled by it having been fully brought out, one of the next lessons would probably be His conduct in the Temple when a child. We will therefore attempt to offer a few hints which may be useful to young and inexperienced teachers, on Luke ii. vv. 40—52.

Filled with wisdom; and the grace of God was upon Him (v. 40).—It is well to bear this in mind, and comment on it with reference to what follows.

V. 41. Explain the Passover itself as the great type of Christ himself, and his crucifixion, and the ransom paid. Show the resemblances between the lamb then slain, and the Lamb of God; the efficacy of its blood, sprinkled then and shed at the final sacrifice it typified; the mode of killing the lamb; the unbroken bones, &c. The parents of Jesus showed their observance of the ceremonies of their Church.

V. 42. Explain "fulfilled" and "tarried," neither of them words that children use. "He tarried, for He had another Father whose will was to be done."

Vv. 44 and 45. Nothing in these but simple narrative.

V. 46. This is the beginning of our Lord's recorded work in His mission. Mark that He did not then *teach:* it is a very common blunder to say He did. He was both "hearing them and asking them questions." It appears that at this epoch of His life, our Lord was feeding His understanding and filling His mind. His time for teaching was not yet come.

V. 47. Here, again, is a declaration of the mighty power innate in the Son of God.

V. 48. The humanity of the worldly parents of Jesus is here brought fully and beautifully out; and this alone suffices to show the entire human nature of the Virgin, and the absence of those attributes in her which are imputed to her by Rome; but which, if she had them, would have taught her, by inspiration, that of which she was evidently ignorant on this occasion.—(See v. 50.)

V. 49. "About my Father's business," has been translated also, "In my Father's House" (Sirach xliii. 10); meaning, "under my heavenly Father's care."

V. 50. They, the parents, were not then fully aware of the glory of their charge, or of the fulness of grace in Him.

He went down with them, and came to Nazareth, and was subject unto them (v. 51). The words in the original still more strongly express that Jesus *continued to submit* Himself unto His parents. What a lesson here, and what a practical example of the force of the fifth Commandment! This should be strongly commented upon. If the Lord Himself was thus obedient to his earthly parents, how much more ought we to serve, and succour, and obey ours? It is well to ask what portion of our duty to our neighbours, in the Church Catechism, as well as what Commandment, this reminds us of.

V. 52. We have in these few words all that we know, combined with those in the preceding verse, of our Lord's whole life from twelve to twenty-nine years of age. They afford, however, a very bright example of a Christian life, and of the cultivation by our Lord of those kindnesses and courtesies which tend so much, and are, indeed, indispensable, to make us grow in favour with man as well as with God. It shows how wrong it is to pique ourselves on the exaltation of our merits or virtues, and to neglect the common courtesies of life. Christ's condescension is a vast theme, and should never be lost sight of in this and in lessons on similar subjects. The perfect semblance to the ordinary course of manhood is beautifully exemplified, moreover, in this whole picture of Christ's life.

The more advanced pupils may be taught, as regards the offices of Christ in the Temple, how there were three several Councils there, in all of which questions might be asked concerning the law; and that the Doctors, in expounding it (as all good teachers should do), asked questions in turn. Lightfoot comments on this.

MODE OF TEACHING THE COMMANDMENTS.—They who explain the Commandments must themselves remember the greatness of the lawgiver; they must *feel* that his commandment is "holy, and just, and good:" or if they speak of the means of grace, they must have themselves experienced the value of them: if they wish the young listeners round them to call upon God at all times by diligent prayer, they must themselves delight in their Heavenly Father as the hearer and answerer of prayer.—*Sermon on Religious Education by the Rev. D. Dale Stewart.*

CIVIL SERVICE EXAMINATION PAPERS.*

HISTORY.†

1. State fully the benefits which you consider to have resulted—
   (1) to Europe from the Crusades.
   (2) to England from the Norman Conquest.
2. What were the claims—
   (1) of Edward III. to the throne of France?
   (2) of Henry VII., and of James I., to the crown of England?
3. At what periods of English History did the principle of elective monarchy prevail over that of hereditary succession?
4. What were the Petition of Right, Instrument of Government, Act of Uniformity, Act of Settlement, and Act of Navigation?
5. Explain fully the allusions contained in the following passage :—
   "After half a century, during which England had been of scarcely more weight in European politics than Venice or Saxony, she at once became the most formidable power in the world; dictated terms of peace to the United Provinces; avenged the common injuries of Christendom on the pirates of Barbary; vanquished the Spaniards by land and sea; seized one of the finest West India islands; and acquired on the Flemish coast a fortress, which consoled the national pride for the loss of Calais."
6. What important constitutional questions were raised—
   (1) by the illness of George III.?
   (2) by the protracted trial of Warren Hastings?
7. State very briefly the occasions on which *six* of the following battles were fought, and discuss more fully their political results :—
   (1) Agincourt, Bannockburn, Culloden, Dettingen, Hastings, Naseby.
   (2) Barnet, Jena, Nancy, Pavia, Pultowa, Tewkesbury.
   N.B.—*Three* battles are to be selected from each class.
8. What wars were ended by the following peaces :—
   Versailles, Bretigni, Westphalia, Utrecht? Give the dates and principal articles of agreement.
9. When did England gain possession of the following places :—
   Canada, the Cape of Good Hope, Corfu, Ceylon, and New York? From whom respectively were they taken?
10. Who was the first King of Prussia?—Give his former title, and the circumstances which led to its being changed.
11. On what pretext did Charles VIII. of France invade Italy?
12. When was the Spanish power at its height, and what led to its decline?

---

* We shall give several of these papers (which have been actually used) as specimens; but it must be rememberd that they vary in difficulty for different department of the service.—Ed. E. J. E.

† In questions 1 and 6 only (1) *or* (2) are to be answered.

GEOGRAPHY.

1. Explain fully how latitude and longitude are measured. Between what limits of latitude is Great Britain included?
2. Describe the position of the principal British colonies and dependencies.
3. State the different articles of commerce we import from each of them respectively.
4. In what countries are the following places situated: Trafalgar, Elsinore, Estamboul, Beirout, Acapulco, Aboukir, Buenos Ayres, Belgrade, Abergavenny, Lima, Cayenne, Aden?
5. Describe the course of six rivers of France, mentioning the chief cities on each.
6. Name the principal seaports on the Mediteranean, and the countries to which they severally belong.
7. What was the population of Great Britain—
   1. At the beginning of the present century?
   2. At the time of taking the last census?

   Give the population of any other country of Europe.
8. Mention the principal mountain ranges of Europe and Asia; and the height of some of the loftiest mountains.
9. Describe accurately the situation of the following islands: Malta, Corfu, Bermuda, Minorca, Lewis, Negropont, Borneo, Guernsey, Mauritius, Owhyhee, Juan Fernandez.
10. What are the most important natural productions of the following countries: England, India, Spain, France, China, Canada, and the United States of North America?
11. By what counties are Derbyshire and Wiltshire respectively bounded?
12. Through what counties would a person pass who travelled in a straight line from London to Exeter?
13. Name the Scotch counties and their capitals.
14. Draw a map of Ireland, marking the positions of Dublin, Cork, Belfast, Limerick, and Waterford.

HISTORY.

1. Mention some of the original sources from which information as to English History may be derived.
2. Give the dates of the following events: the Conquest; the destruction of the Spanish Armada; the Revolution; the accession of King George III.; the Union with Ireland; and the separation of the Crowns of Great Britain and Hanover.
3. Trace the descent of the reigning Sovereign from King George I.
4. Name the English Sovereigns of the house of Stuart, giving the dates of their respective accessions. State any particulars which you recollect as to the last effort made by a descendant of that family to recover the throne.
5. What was the cause of the American War? How did it terminate?
6. Give a short account of the life of one of the following great men:— Cardinal Wolsey, Sir Walter Raleigh, Oliver Cromwell.
7. Mention some of the methods anciently resorted to by English Sovereigns for the purpose of raising a revenue. What was the great subject of contest in the time of Charles I.?

8. State roughly the amount of the Public Revenue in recent years, and the interest of the National Debt. To what period is the origin of the debt assigned, and on what occasions has it been increased during the last forty years?
9. Mention the principal articles now subject to duties of Customs and Excise, and the most important changes which have recently been made.
10. Into what classes may the Constituencies represented in the House of Commons be divided? What class of Bills invariably originates in that House? What are the ordinary qualifications of voters?
11. What is meant by the phrase "International Law?" Mention some of the acts which it prohibits. Whence arises the difficulty of enforcing it?
12. Mention some of the arguments by which the execution of Mary Queen of Scots is condemned or vindicated.

19*th July*, 1855.

GEOGRAPHY.

1. Give the boundaries of England, Wales, Scotland, and Ireland respectively.
2. Give the names and positions of the various islands belonging to the British group.
3. Name the counties and principal towns on the north-western line, from London to Edinburgh.
4. Name the dockyards and chief mercantile seaports of Great Britain, with the counties in which they are situated.
5. What are the principal exports of Great Britain, and the localities where they are produced?
6. Describe the positions of the following British possessions:—Gibraltar, Corfu, Heligoland, Sierra Leone, Mauritius, Falkland Islands, Jamaica, Newfoundland, and Guiana.
7. Trace the course of the Danube from its source to its mouth.
8. What are the principal seaports of France?
9. Name six rivers of Russia, with the seas into which they fall.
10. Name the capitals of the following countries:—Prussia, Sweden, Persia, China, and Canada.

12*th July*, 1855.

LOCAL WORDS.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—In compliance with your request, I send you a few Gloucestershire words, and I hope to collect more to send you at a future time.

Ayriff, a seed often found among wheat.
Bad, a husk; hence,
Bannut, a walnut.
Barton, a farmyard, and the surrounding buildings.
Baulk, a narrow band of turf, dividing lands in arable common fields.
Blethering-pole, a pole for beating apples, &c., off the tree.
Bossy, or *bos*, an ox: a ploughman thus addresses an ox.
Bowzing, a cow-shed; from *bos*, an ox (?)

Clavy, a chimney-piece in a farmhouse: derived from *clavis*, a key, because the keys are kept there.
Crank, a hooked stick for breaking rotten wood from the tree.
Eckel, a woodpecker.
Gripp, a shallow open drain.
Gull, a gosling.
Haine, to fence grass growing for hay.
Hames, part of the harness of a cart-horse.
Heft, weight.
Kype, a kind of basket, usually containing a bushel.
Langet, a long narrow field.
Lash, a trace.
Lash-horse, the trace-horse.
Lode, a wharf, or landing-place.
Long's length, a furlong.
Mooch, to play truant.
Moocher, a truant.
Moot, to stub up trees.
Nurly, brittle.
Oont, a mole.
Pargiter, a slater and plasterer.
Pishty, a puppy.
Quist, a wood-pigeon: a Gloucestershire saying, "Thee beest a queer quist, as the boy said when he shot the owl."
Rathe, early.
Rāther, earlier.
Rea, a fishery.
Reen, an open drain, deep and wide.
Ruck, a pile of timber in the rough.
Sanicle, or *sanicole*, a healing herb: from *sanus*, healthy; *caulis*, a herb.
Shard, a gap.
Speeks, or *sprays*, pegs used by thatchers.
Sprack, sprightly.
Tallet, a room over a stable.
Tash, a bad taste.
Tatchy, having a bad taste.
Ted, to toss grass in haymaking.
Thrashel, a flail.
Tonkin, a pipe carrying water through a stream, so as not to mix with the water of the stream.
Unkid, melancholy.
Wallies, the ridges into which hay is raked before being carried.

Of the spelling of some of these words I am not certain.

Yours faithfully, ROBERT E. FRANCILLON.

Ryeworth House, near Cheltenham.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—On p. 136 of Mr. Trench's little work, "English, Past and Present," the word 'kind' is noticed, and its old signification explained.

In a poem on "The Times of Edward II.," supposed to have been

written as early as 1320, the epithet 'unkind' occurs with two different significations, the former of which I think to be the older of the two :—

> "Conne a boy breke a spere
> He schal be made a knygt,
> Thus beth knygtis i-gadered
> Of *unkynde* blood."

Here, 'unkynde' means unaristocratic.

> "And send wederynge on erthe,
> Cold and *unkynde*."

'Unkynde' in these lines signifies unseasonable.

In the same poem there are a few words worthy of notice; I give them as they occur to me.

To qweme, to please, from which we derive 'whim.'
Nym, to take; hence the words 'to nimm' (Fuller), now local.
Shewer, a mirror.
Cowthe, public.
Temper, to mingle.
Catel, property.
Wederis, clouds; the root of 'weather.'
Depert, to separate, divorce.
Onskyll, wrongfully.
Bretful, brimfull.
Shend, to confound; 'shindy' (provincial), confusion.
Hend, gentle, polished; the root of 'handy' and 'handsome.'
Gentry, la mode.
Worthe, is.
Pye, to steal.
Ray, a stripe in cloth.
Entaile, cut or fashion.
Flete, floor.
A skyll, a reasonable plan.
Horde, treasure.
Wyk, wicked, weak.
Sond, message; compare "Their 'sound' is gone out into all lands, and their 'words' into the ends of the world."—Psalm xix. Prayer-book Version.

Words used by children in the suburbs of London :—

Bopp, to bow the head, stoop.
Chough, sparrow (Shakespeare).
Cop, to receive chastisement.
Coy-fellow, a lover.
Grub, victuals; crub, crubbin (Somersetshire).
Kid, a child; compare 'kidnap,' and the Dutch 'schild-knapen,' applied to knights' esquires.
Nim, to catch (used by Fuller).
Nap, *nab*, to seize, receive.
Nouse, sense, judgment.
Tar, to tease incessantly, dare (Shakespeare uses 'to tarre,' to provoke.

Whimsey, to initiate into a particular craft.

Wits, senses (used by Chaucer in this sense).

Whopping, *whopper*, applied to anything uncommon or extraordinary; the same as 'wapping' (Hallamshire).

"*Wapping* Tales of My Lord Mayor's Horse" (the honour of Cheshier and Lancashier, by R. G., as quoted in "The Earls of Derby," and the verse-writers of the time; an unpublished tract, by T. Heywood, Esq.).

In some trades the word 'journey,' pronounced 'journy,' has received a peculiar signification. It is applied to money given to persons on their journey ('on tramp,' is the vulgar expression), seeking employment.—I am, Sir, yours truly, RICHARD MORRIS.

St. Matthew's National School, Bethnal Green, December, 1855.

GYMNASTIC EXERCISES.—One of the principal causes, if not *the* cause, of the attenuated and pallid appearance of Americans is doubtless the neglect, or rather the violation, the habitual violation, of the rules laid down by nature for muscular development. The class of men in this country, whose occupations are such as almost necessarily lead to the formation of sedentary habits, is very large; larger, perhaps, in proportion, than that of any other commercial nation. And this will account in a measure for the fact, that various complaints, generally the concomitants of insufficient physical exercise, are more prevalent here than elsewhere. Our young men being thus confined to the limits of a counting-room, at a time of life when the open air and constant motion of the body are indispensable, it is not surprising that they should be in manhood so sadly deficient in muscular vigour, and exhibit so little of athletic developments, that are looked for in the sterner sex. With many such their lot is their fate, or is imposed as a necessity from which there is no escape, and for these there is some excuse for the loss of health and life. But what shall be said of those who make no effort to ameliorate their condition, or of that still more culpable class who, from mere indolence, suffer their bodies to *waste* away, to sink into premature old age, actually paying a premium for crooked spines, humped backs, round shoulders, attenuated limbs, and drooping heads?

In Germany the old men thought they saw the youth degenerating both physically and socially, and, after severe study and mature reflection, recommended, by eloquent appeals through the public prints, the adoption of vocal and gymnastic exercises, as characteristic of the German race. In a short time gymnastic and vocal societies were organized throughout the whole extent of Germany, which have resulted in a highly favourable revolution in the physical condition of the people. It is not really necessary to proper and healthful exercise that one should be provided with parallel bars, &c., for there are many things at hand that may be substituted for them, which can be made, with no expense or trouble, equally efficient. Flat-irons, it is suggested by a contemporary, can be used to develop the muscles of the arms and chest, and leaping or racing may be practised to strengthen the whole body, and render the step light and the stature erect. If such simple exercises were practised daily in the open air by the youth of the country, there would soon be a diminution in the many defects which mar the appearance and impair the health of the people.—*Canadian Journal of Education.*

TENDERNESS IN REPROOF.—Husbandmen tell us, that the young and tender branches of a vine are not to be pruned away with a knife, but gently pulled away by hand. Before we reprove, let us know the condition of our brother, whether he is not, like the young vine, soft and tender, and so to be cured rather with the hand than with the knife; and if he be grown so hard that he shall need the knife, we must not rashly adventure of it, but know there is a skill likewise in using the knife.

ON THE BEST WAY OF TEACHING THE CATECHISM.

BY THE BISHOP OF ST. ASAPH.

THERE are two real difficulties connected with this subject; one arising from the language, which must be allowed to be obscure, the other from the logical closeness with which it is drawn up, and which is not readily understood by the learner.

Children begin to learn the Catechism at a very early age, and are often allowed to repeat it without any attempt being made to enable them to have an idea of what is meant by it, so that it will often happen that they never consider whether there be any meaning in words with which they have become mechanically familiar.

In order to obviate this evil, the best method will be, to break up the Catechism into its constituent parts, and to begin with that which is easiest. With this view, the child should be taught the Lord's Prayer, and I have attempted to show how a little child may acquire some notion of the meaning of those words which they are to employ for the rest of their lives. (See *post.*) Those persons will be able to form an adequate estimate of the importance of this, who have seen how many young persons, in after-life, go on repeating words to which they attach no definite meaning.

When the children can say, and in some degree understand, the Lord's Prayer, they may be led on to the Ten Commandments, which will probably be more intelligible. Very little infants have learnt that it is wrong to steal and to swear, and having begun with the notion that words convey some sense, they soon attach an idea to what is taught them, and the teacher's aim will be to provide that this shall be the correct one.

The Creed, which will follow the Commandments, is an epitome of the history of revelation, and if conveyed in this way, partakes of that clearness which usually belongs to narrative. Both these subjects may be illustrated by pictures, and the children may be shown the representation of Moses bearing the two tables of stone, of Cain slaying Abel, or of the events connected with our Saviour's life.

When, then, these three lessons have been committed to memory, and understood, as far as the child is capable of understanding them, the children should be led on to the Catechism as a whole, and may begin at the beginning. The first object is to make them understand the words of which it is composed; and if the same division of questions be attended to, as has been laid down, we may content ourselves for some time without entering on the spiritual instruction to be derived from what is repeated. This must be gradually and constantly opened, and texts, illustrative of the several articles, will, by degrees, be laid before the scholars, and learnt by them.

The Church Catechism may be deemed a systematic arrangement of Christianity, a framework, to which every thing which we learn, in our religious education, may step by step be attached. The child may learn the Catechism, and yet not be acquainted with our holy faith; but they who have learnt this formulary well, have understood its meaning, and have arranged their subsequent studies under the heads there so logically laid down, will have gained a great step in avoiding errors, into which a want of systematic teaching is apt to lead religious persons.

The Church Catechism should form the text-book from the lowest to the highest class in the Sunday School,—should never be omitted as a part of the school business for any considerable time,—and should form a memorial common-place book, in which, whatever is learnt, should be arranged and deposited.

1st. What do you mean by an "angel?" What do you mean by the word "tidings?"

2nd. Who spoke to them? To whom did the angel speak? What did he say? Why need they not fear? What were the good tidings of great joy? To whom was it to be good news?

3rd. And is it good news to all people? Will all people be benefited by it? Why did our Saviour say, "Woe unto thee, Bethsaida?" &c., &c. Are there none among us who had better never heard of Jesus Christ?

The character of the questions will vary much, according to the knowledge of the class; and it can only be ascertained by experience, what sort of questions ought to be asked; the first object of the teachers is to be conversant with the subjects, to understand them themselves; and then to take care that their scholars comprehend them also.

And no lesson should ever be read or repeated, without the teachers convincing themselves, by questioning, that the children perceive and comprehend the general import of that which they are saying. It is indeed difficult, with very little children, to make them properly understand that which it is quite right that they should learn by heart. Yet still it may be accomplished, in some measure at least. For example, let us suppose that we were attempting to teach the Lord's Prayer to very little children.

Who is our Father in heaven?* Where is God? Whose Father is he? Have you another father? Which is the best father? What does "hallowed" mean? Whose name should be kept holy? Who should try to keep it holy? Should you take God's name in vain, and use bad words? Whose kingdom do we pray may come? Do all people pray to God? What do some people pray to? Are they who pray to wood and stone God's people? Whose will should we try to do? Who does God's will in heaven? Which does it best, angels in heaven, or we upon earth? Should you try to do God's will, as the angels do? Whom do we ask to give us our daily bread? Who gave you your dinner? But who gave you a mother to give you a dinner? What does "trespass" mean? Who can forgive us our sins? If any one hurt you, should you try to hurt them? Why not? What should you do? If you do not forgive others, will God forgive you? Who leads us into temptation? Who can save us from the power of the devil? Who can keep us out of all evil? Whose is the kingdom? Which is best, heaven or earth? Whose is the power and the glory? What do you mean by "Amen?" It is something in this way that we may lead even little children to divine truths.—*From "The Teacher's Friend," an admirably practical series of tracts.*

---

* Nearly all of these excellent questions may be further illustrated and confirmed by referring to the parables, commandments, and precepts which enforce them.—Ed. E. J. E.

PUNCTUATION.

"MIND YOUR STOPS!"

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—A perusal of an interesting and useful little work, "Mind your Stops!" published by Groombridge (at 6d.,) leads me to suggest that *punctuation* is an important branch of education. The compositors in printing-offices punctuate most diversely. I would suggest that some uniform scheme of punctuation should be propounded and generally agreed upon, and that *then*, the compositors should always be directed to "punctuate as in the copy".

I will notice one or two points, chiefly concerning the pointing of parentheses (including references to authors quoted), and quotations.

At present there are two plans in use in different London printing-offices. They are as follows :—

Plan A. :	*Plan* B. :	*Plan* A. :	*Plan* B. :
,(,)	( ),	:"	":
;(;)	( );	."	".
:(:)	( ):	!"	"!
.(.)	( ).	?"	"?
,"	",	&c."	" &c.
;"	";		

Now they are both right, and both wrong. Both are right in the occasional use of their own forms; but both are wrong in the *exclusive* use of them.

First, as to parentheses. Here, as a *general rule*, Plan A. is decidedly the best, and far more pleasant to the reader. I have proved it by seeing the effect of matter of my own which when "set up" in a Magazine on the Plan B., was most tedious and obscure, (owing to the copious references,) but which BECAME 50 per cent more perspicuous and readable in a reprint where Plan A., was followed. And yet even here there should be a few exceptions. Take these two examples from a book pointed (as the general rule) on Plan A. :—

> For "lights" on an "altar" (which is illegal in our churches), cannot mean &c.
>
> Hymns, creeds, and Litany (and even that is directed to be "*read*" when it forms part of "Morning Prayer"), without exception direct &c.

Now in both these passages had the compositor followed the *rule*, instead of the *exception* as in the MS. copy, and set them up thus :—

> "Altar", (which is &c churches,)
> Litany, (and &c. Prayer",)

they would have been *ipso facto* CONVERTED INTO bad grammar; and "lights" would have stood as the nominative to "is", and "that" as the relative to "Hymns, creeds, and litany"!

Then as to quotations, the stop (whether "," or ";" or ":" or "." or "!" or "?", or the "&c.",) should be inside *or* outside the "*according to the sense; i. e.*, inside, if it be a *bonâ fide* part of the quotation; and outside if the author's addition to the quotation.

Take a few examples :—

(1) Is that work *quite* "out of print"?

Here the ? should be outside, *because* the bookseller's reply "out of print" was not a question but an assertion ; and the object of the ? is to express a doubt whether that assertion be quite correct ; and the point of the query lies upon the word "*quite*" and not upon "out of print".

(2) He said, "What o'clock is it?"

Here the ? should be inside, *because* it is a part of the matter quoted.

(3) He said he "could travel a hundred miles in an hour"!

Here the ! should be outside, *because* the ! is used to express astonishment at the strange assertion—which might have been made in the greatest simplicity by the person quoted.

(4) He said, "Poor fellow!"

Here the ! should be inside, *because* it is part of the phrase quoted.

(5) Is it *true* that "Mr. Cobden is to be prime minister"? that "we are to have immediate peace with Russia"? and that "the Czar has yielded to all the demands of the Allies"?

I need scarcely point out the difference between ?" and "? in this one passage.

As a rule, if an author be quoted, and his sentence be concluded with *his* stop it should be so printed—

," ;" :" ."

and an &c. outside thus—

;" &c.

But if the &c. be a part of the quotation, then &c.", as in the following passage from Dr. Cardwell :—

"For leases, law-days, &c."

To my mind, the best mode of marking omissions is this one :

. . . . . .

according to the quantity of matter omitted.

And the best mode of marking a word (or words) inserted by the author in a quotation is by the use of brackets :—

[ ] or [?] if required.

I will not say more, but conclude, remaining, Sir, yours truly,

C. H. Davis.

Nailsworth, 4th Dec., 1855.

P.S. In references to the Bible, whenever the letter "v." is used as an abbreviation for "verse", it should be italicised thus—"*v.*"—otherwise it may easily be mistaken for a reference to a chapter, (i. e., the 5th chapter,) "chapter v., verse 16" would be thus abbreviated :—"v. 16." Whereas no one could well mistake "*v.* 16" for chapter v., verse 16. Authors should therefore be careful to underline the letter "v" whenever it occurs in their M.S. copy as the representative of "verse" in order that it may be italicised by the compositors and be set up as "*v.*".

THE EDUCATION OF THE CITIZEN—No. 3.

POPULAR JOURNALS.

LABOURS undertaken with a view to a single and even selfish advantage are commonly attended with collateral consequences of vaster importance and more beneficial character than those which are avowedly directed to a lofty and generous object. It would seem that man's share in the work of his race's regeneration is most successfully accomplished by his obedience to the dictates of self-interest. As if to exclude boasting, it is ordained, that while high principle and self-denying effort reproach the sordid selfishness of the mass of mankind, the interests of mankind are most effectively served by that self-seeking which is individually condemned. Thus the eager merchant has been the apostle of civilization, the grasping competition of the trader has placed the luxuries of life within the reach of poverty, or at least banished from its habitations the ruder aspect of barbarism; the plodding burgess, while accumulating the profits of the Cheap, has laid the broad foundations of civil freedom. This dependence of that which is ennobling upon that which, in philosophy at least, is counted mean, is conspicuous in the whole course of human affairs. The car of human progress rolls in the tracks worn by the wheels of commerce; the mind has achieved its highest artistic triumphs, and most useful mechanical adaptations in its ministration to the ostentation of wealth, or the spirit of money-getting; and nations receive their first lessons in refinement and true religion through the instrumentality of that genius that crowds their ports with sails, and has sought indifferently to freight its vessels with the produce of their climates, or the children of their soil. The highest wisdom is discernible in this; the work to be accomplished is too vast and too difficult to be committed to the sparse sympathies of good, or the rare abilities of great men; it is therefore left to the unconscious but inseparable agency of the whole race, and the operation of a general law that renders subservient to its object the efforts of selfishness and benevolence.

It is not therefore singular that education in its loftiest relations of that character, which must exercise the most supreme influence over the moral development and eternal destiny of the individual, is recommended by the laws of political expediency—so recommended, that could passion and sectarian aspirations be excluded from their councils, it might safely be trusted to the disciples of that science of selfishness; for if experience has taught one truth more evidently than that it is cheaper to fetter vice in the school than to punish it in the prison, it is this—that the precautionary education that will serve that economy, is precisely that which the philosopher would approve and the Christian would advocate. Were it not for this circumstance, it is not clear that governments are bound to provide for—that they would not misapply their resources, did they attempt to direct or support institutions for the education of the governed; for the simple end of government is the conservation of the rights of property and person;—our most ancient institutions exist only for the protection of these more ancient institutions. But it is no modern discovery that this end can be best secured by attention to the spiritual and intellectual condition of the citizen: no government has existed that has not recognised the law that unites

obedience to civil power with reverence for the ultimate authority of Heaven. Where the popular mind was controlled through the senses by a material worship, a splendid ritual, and the jealous supervision of a sacerdotal order, the reasoning faculty was a superfluous or doubtful ally to the civil power, which the superstition supported; but amongst a people taught to "walk by faith and not by sight," whose severe simplicity of worship is as bare of sensual influences as its sanctuary of images, ignorance, which is a matter of indifference or necessity in the first case, is incompatible with the influences of religion. To ignorant minds, a creed of sublime and abstract truths is nothing; to a reasoning man, though destitute of the essentials of true religion, it may be a bond of conduct, which he will disdain perhaps to acknowledge. It strikes the conscience through the reason, as the religion of symbols reaches it through the imagination. The political end of religion—for of its higher end and influences we are not speaking—is attained in this result; so that it assures social interests, it is politically indifferent whether the influence be deepened into a saving faith. But in this meaner success the nobler work is almost accomplished: the soil has been prepared and the seed sown; beyond this, man's control and the teacher's responsibility do not extend: the citizen is taught to reason and believe; and to reason and to believe, involve all the points in education for which the philosopher or Christian could contend.

To a system of government which rests its claim to obedience upon its intrinsic merits, and challenges the rational acquiescence of the governed in its existence, religion is necessary as a moral check upon personal depravity—the light in which we have already regarded it,—and reason takes the place it held in the despotisms of the ancient world. We require the citizen to be a believer, that he may be a moral man; and a reasoner, that he may be a loyal subject,—to submit his conscience to the fear of God, and his social conduct to the maxims of sound government: whether this desire aproximates to fruition, with the extension of the mechanical aids to education; whether the national school has infused its fair proportion of strength into the social frame; whether the multiplied race of readers is a believing or reasoning race, are questions suggested by our subject, and answered in the pages before us. Popular literature opened no very cheerful view of educational results; popular journals give no brighter aspect to the picture, bring to the eye no hopeful lights or redeeming circumstances. The moral and intellectual condition of the patrons of the first, which it may be *supposed* to exhibit, the latter unmistakably portray. As a gauge of the depth of popular ignorance—even when no small portion of the neglect of ages has been repaired,—of popular tastes and prejudices, the Sunday paper, with its feast of horrors, its choice entertainment of filthy "cases," its selections from the scourings of criminal courts, its rabid politics, and boisterous advocacy of popular fallacies, is more trustworthy than even those sheets of wickedness or nonsense which fall so plentifully from the press—that fountain of sweet and bitter waters; there can be no apprehension of a refinement of suspicion in this case. The penny romance may or may not be a moral and intellectual image of its readers, its influence may be neutral or may be disputed,—we may fear of them too much: but here is the expression of contemporary thought of the counsels of actual life—of what may be motive truths to the mechanic whose hammer sounds

in our neighbourhood. The words we read are counted the words of wisdom by tens, by hundreds, of thousands; they are to them the "Hebrew tongue,"—the language they understand; they are the enunciation of their political creed, the picture of their social position, as seen by their own imperfect and jaundiced vision; they betray the aspect in which those who are counted by wise men their friends and enemies, are viewed; they form a catalogue of their discontents, their errors, and aspirations. If the result of the reviews afford little comfort and little encouragement, let us not blame the venal pen that caters to their grovelling tastes and fosters their pernicious prejudices: when these tastes and prejudices are destroyed, the occupation of those who minister to them will have perished. The people are not what cheap literature and cheap journals have made them, but what national education has left them.

The cheap newspaper may therefore help us to discover, with some additional clearness, what education has left unaccomplished, and thence the nature of the work which remains to be done. Of the large number of weekly prints—which recent financial regulations have, perhaps, multiplied—two, commanding a nearly equal circulation, far outnumber the rest taken in the aggregate. Of one of these, of high-class ability, but questionable principles—we simply express that personal opinion—we imagine that its price confines it to a class above that of which we write; the other, within the reach of the poorest, edited with less talent than skill in gratifying the morbid appetites of its readers for the details of crime and profligacy, and abounding in "leaders" written with that coarse freedom of thought and language which ignorance cannot distinguish from the confidence of wisdom, we take not only as a sample of the mechanic's fireside lessons in politics and morality, but of the ignorance which remains to be removed, and the obstacles that retard its removal. And first it will appear that we have not diffused amongst the masses any high degree of political erudition. This does not appear in the "radicalism," or republicanism, or "communism," which is the staple of their manufacture; with these jarring creeds—which serve, perhaps, in the social system the purpose of antagonistic forces in the solar system, to preserve the due equilibrium of the whole—we have nothing to do; but it is taught, in the evidence of the prevalence of doctrines as subversive of all the ends of education as those propounded by Jack Cade to his gaping followers. The most zealous admirer of that freedom of opinion which balances parties in the State—the most indifferent to the aspect of the political world—must regard with sorrow the existence of prejudices which oppose themselves to the most generous efforts of benevolence, expose its objects to the miseries of discontent, occasionally of physical suffering; and by diverting their attention from the true origin of the social or domestic evils they endure, prevent that personal effort by which they can only be removed; for it is to be observed, that these papers, however profuse in their strictures upon power, however vigorous in their admonitions to the "governing class," have little apparent inclination to risk the loss of a subscriber by reminding him of the vices which oppress him with a more terrible despotism; or that no political franchise can produce the effects of industry, soberness, and self-denial. Few errors have wrought worse results, more enduring distress and immediate misery, than that ignorance

of the simplest laws of political economy—and what is a more powerful teacher of the results of experience?—that gives birth to the "strikes" and "combinations" which periodically afflict our industrial population. These pages inculcate these calamitous associations as the duty of patriots and Christians. Next to this and its foster children are those antipathies of men who can give no reason for the hatred that is in them, beyond the existence of classes socially superior to their own, with their attendant brood of jealousies and suspicions, which repulse or disgust the zeal of their benefactors. These are encouraged with all the vigour of language, unrestrained by the fear of a revolt of taste, or the awakening of latent common sense. Thus, from the numbers of the last fortnight's issue—a period of no strong political excitement—in which, therefore, the peculiar characteristics of the journal are not exaggerated by the necessity of rising to the level of public excitement—we extract the following. The subject is a "strike" of the "self-acting minders and piercers" at Manchester:—

"We are heartily sorry to learn that the operatives are not unionists; we deeply regret that they have no organization; and we fervently hope and pray that their next attempt to form themselves into a union will prove more successful than their previous efforts. We believe that if they had been properly organized, and fully prepared for a struggle with their employers, many, if not the whole of their hardships, would have been obviated."

Again,—

"As we observed last week, the Manchester men are now in the front rank fighting the good fight of labour. Their victory will inflict a staggering blow on that rampant and rapacious injustice by which the children of toil have been so long and so mercilessly crushed. Their defeat, on the other hand, will contribute to rivet the fetters, and postpone the emancipation of labour. . . . . The operatives are engaged in a most difficult and soul-trying struggle: they are opposed to powerful and unscrupulous adversaries; they are beset with many temptations to become cravens and yield."

"And," concludes this apostle of mischief and misery, alluding to an attempt at mediation, "this gentleman is one of those foolish teachers who would convert the gospel of freedom into a code of human slavery—who would alienate from religion all its manly, ennobling, emancipating ingredients. He forgets, or does not choose to remember, that resistance to tyrants is one of those duties most solemnly inculcated by Christianity."

Surely, national education has failed in *one* of its immediate objects, if it has simply opened the ears of ignorance to such pernicious lessons as these. For what are their results? Not only does the disciple receive his inevitable share of the injury which loss of capital, paralysis of trade and commercial activity entail upon the community, but he loses the spirit of reliance on personal effort, in looking for a Millennium of labour, to the advent of which his habit of lounging and opposition will contribute. He expects to be legislated into comfort, and attributes what is consequent upon his vices to "class legislation" and "class oppression." The means of averting the common calamities of life are dissipated in the hours of voluntary and factious idleness, in the support of "secretaries," "delegates," and brother "unionists." Above all, the angry spirit of antagonism to all existing circumstances vexes him like a shirt of hair, or thorn in the flesh; his home becomes a chaos of neglect, discomfort, and discontent. Poverty, if not vice, is the sure attendant upon all this; and society is taxed to support the burden. Thus, funds which might supply the necessity of a score of schools, are devoted to the erection of a new wing to the workhouse, if not to add a new ward to the bridewell.

Yet, for all this, the remedy seems sufficiently easy. Men well instructed in the principles of sound political economy—versed in the simple rules that regulate wages and capital—ridicule these follies, dangerous only when suggested to ignorance. Were the true principles taught in the school, false principles would make no figure in the newspapers; and, in accordance with the general law that links to the efforts of selfishness the effects of generosity and benevolence, Capital, while assuring its interests; Property, while lightening its burdens; and Government, in easing the grating and straining motion of its machinery, would turn, for individual advantage, into worthier channels, energies that waste themselves in follies; bring content into a thousand homes, and peace into ten thousand bosoms.

Thus much for political errors. We shall find no greater wisdom displayed by these columns when touching on popular prejudices. We select from the same sheet some passages from an article on "The Bases of Human Tyranny," in which the writer, with evident design, alludes to no actual form of despotism, but leads the reader to apply the term to every form of government excepting that which never can exist. Thus:—

"The main foundation of every existing form of oppression is the cowardice of the oppressed. Hence the fundamental principle of every tyranny is terror . . . . But there could be no terror if there *was* no cowardice. By cowardice is then meant that disposition of mind which fears death more than dishonour, and loves life more than liberty. . . . . One of the most solemn injunctions of our religion—'Fear not him who can kill the body.' Indeed, until this fear be cast out, every man is at heart a slave."

After proceeding with this tirade, which might be called nonsense but for its wickedness, and telling his unhappy scholar that his contempt of death must be governed by reason, "that no risk ought to be incurred without a probability of success," and informing him that as there are two species of terror, so there are two races of slaves governed by those terrors—sensualists, who are subject to physical force, and the superstitious, who are governed by the ecclesiastic; but that a few, "courageous and intelligent, disdain alike the fear of death and the menaces of a hireling priesthood, because they believe that the free and the brave are more acceptable than the craven and the enslaved, to Heaven;" yet that these few are so divided "as to be powerless against the stupendous masses of cowardice, craft, and superstition with which they have to contend," this precious teacher concludes:—

"Sir,—looking at these difficulties, it must be confessed that the prospects of freedom are not the most encouraging in the world. Yet there is something to make us hope. With the increase of popular intelligence, the weak points of the tyrant will be discerned. When slaves learn to reflect, they will perhaps reason that liberty is worth contending for; inasmuch as if even life is lost, it is only anticipating by a few days a debt which all must pay. Slaves and cowards die as well as the brave; and, in the battle of life, it is always more honourable to have our wounds in front. Strange, that many for fear of a bullet, submit to death by starvation."

We need waste no words to prove that no institution, unless it be that of property, is imperilled by this miserable effusion; but is it only to the standard measured by such trash that we have raised the morality and intelligence of *one* generation of citizens? Will the material now under our hands be moulded into a nobler shape—will the process which has done so little to elevate the fathers, do more to elevate their children? Is the national school still the preparatory school for the demagogue?

Is it enough to confer the power of communing with evil spirits at the fireside, who in time past confided their evil counsels to the taproom orator, but now exalt his ravings to the dignity, and, to the ignorant, the high authority, of print? Were none of these taught religion in their youth—versed in the catechism of the faith—and able to prove every dogma from the written Word; or has that religion, a thing of memory, vanished at the portals of the school like morning mists? Is the religion we are teaching of more enduring nature? will it withstand the attacks of flippant infidelity, or the audacious assertions of rationalism? Do we teach the theory and wisdom of that system of government which we expect our scholars to revere? Do we defend from the feeblest assaults of doubt, or the vaguest plausibility, the fabric of religious training we have toiled to raise? Does the school catalogue of "common things" embrace the laws affecting civil as well as physical existence? These are questions pressed upon us by the contents and tone of the popular journal. We shall not approach the end of political education until we can affirm that the education of the citizen is such as to assure him against this revolt against his own interests and sin against his own soul.

S. D. W.

SIMULTANEOUS TEACHING.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—In your number for this month there is a short article signed J. S., on "Simultaneous Teaching," on which I, as one of the parties referred to in it, wish to make a few remarks.

It is not my intention to try to prove the excellency of the simultaneous plan of teaching. I am, perhaps, unequal to the task, and, besides, from the emphasis with which J. S. condemns it, as an "arrant mockery and vicious delusion,"*—words put in your good-sized capitals, Mr. Editor,—it not only appears to me that J. S. has thoroughly weighed the matter, and logically come to this gentle conclusion, but I am also reminded of the proverbial futility of trying to convince a man against his will.

Amongst the many "systems" of education at present in vogue, the best, undoubtedly, with every man is *his own.* Now if J. S. is a practical schoolmaster—and the practical schoolmaster is the fittest critic in these matters,—and if he has had the good fortune to *invent* a better system than the one he condemns, in all fairness, and with all my heart, let him enjoy it and be quiet. I also am a practical teacher; and if I have found a system of instruction and education at once elegant and effective, let me be excused if I like my plan too. Or if J. S. has tried the "simultaneous system," as an unskilful rider might mount a thorough-bred racer, and if he has been thrown, much to the danger of his neck, let us charitably excuse his prejudice against said racer: has he not reason on his side?

---

* This is not what J. S. said. He applied these terms *not* to simultaneous teaching, but to the teaching thus of *dry* things, not interesting to children, so "that two or three bellwethers of the flock may answer questions correctly enough, loudly echoed by the rest." (See vol. ix. p. 458.) This being the case, Mr. Sutcliffe merely mistakes what was said, and so far from answering it, in effect maintains what J. S. held, for both approve of simultaneous teaching, judiciously applied, and within its proper scope.—ED. E. J. E.

But if J. S. is *not* a teacher—if he is, who shall say what?—it is with a certain disagreeable fear and trembling that I next point out that he is, perhaps, mistaken in the definition of the term on which the whole discussion turns. Putting a number of children in a gallery, like so many narrow-necked bottles, to use the old figure, and throwing a bucket-full of watery information on, is not what *we* call simultaneous teaching. If he means that there is no care, on this plan, to see that every child is going on with the teacher; that there is no holding up of hands, no questioning; no individual questioning much of it; no rigorous testing of the effectiveness of the lesson by searching questions at the end; no care that the lesson be reproduced in writing, if the children can write; then I can only say he is attacking a windmill which I have no wish to defend. He talks about schools relying on *it alone.* I can venture to say that no master of a school where this system—and not some weak and miserable semblance of it—is carried out ever thought of such a thing. It certainly would be "a farce" if it were so, and as certainly the poor "jackdaw back" should have its "peacock-feathers stripped off," as J.S. recommends. But whilst J. S.—who I have not a doubt hates "simultaneous teaching" as a name unjustly applied to a sort of higgledy-piggledy anyhow style of indiscriminate talking—is heroically tearing off from the unfortunate daws the feathers they had never any business to don, let me ask him if he will have the goodness to allow the harmless birds whose feathery honours have been so wantonly stolen, to live at peace.—Your obedient servant, JOHN SUTCLIFFE.

Normal College, Cheltenham, December 22nd, 1855.

POPULAR USE OF MATHEMATICS.—There is, perhaps, no subject with which it is more valuable for a man to gain some acquaintance than the elements of Mathematics. Even for a working man, there is nothing which can be studied with greater advantage, provided that what he reads he reads thoroughly and soundly. And why? It teaches him several things: it teaches him, for instance, to value the difference between a bad argument and a good one; it teaches him to consider whether one consequence really does follow from another; it teaches him to consider whether there is any connexion between a conclusion and the premises from which it is said to be drawn. For you will understand, that Mathematics is fundamentally the science of reasoning; of reasoning, that is, on certain subjects—subjects which are capable of being treated with the utmost exactness, and in which we are quite certain of the results to which we come. And it is very valuable for a person to have seen examples of thoroughly sound reasoning, because there is nothing scarcer in the world than reasoning really pure. Take an ordinary man's conversation, and there is hardly one conclusion he draws out of twenty that will really hold when you examine it carefully; and I say that, in order to give you the habit of mind which leads you, on all subjects, to consider whether conclusions are good, or only false and specious, the best mode of training that you can adopt, according to my judgment, is the study of Mathematics, thoroughly digested as far as you go. It does not matter whether you go a short way or a long way, but you must thoroughly understand what you do read; and if a person could only demonstrate the first twenty propositions of Euclid, I should say that he was raised to a perfectly different level of intellect from that of one who knew nothing about them: the process raises a man to quite a different department of thought. On these grounds I am very glad we have got a large class to learn Mathematics. Whether the dryness of the study, as it is sometimes considered, will frighten some of those away who have put down their names I do not know, I hope not; I feel almost sure, that any one who will really give his attention, and get over the first difficulties, will find Mathematics a delightful and beautiful study.—*Rev. H. Goodwin's Address on Education of Working Men, at Cambridge.*

SELF-EDUCATION.

THE subject of education is deeply interesting, involving as it does the well-being of all classes, and is one that is yearly engrossing a greater amount of attention from the public at large. In fact, so much has been written on this point, and so much done to make instruction easy and agreeable, that we are almost tempted to believe, that the old saying, "There is no royal road to learning," will have to be laid by amongst the things that have been.

A branch of this subject, however, and that a most important one, has scarcely received its due share of attention,—we mean Self-education. One of the great points to be aimed at in the instruction of a child, is not merely to cram his head with dry facts and theories, but to plant in his mind a wish for self-improvement hereafter, when he is thrown upon his own resources; and this view of the case opens to us two general questions, namely, By what means is this wish to be implanted in the mind of a child? and, How, when that child becomes a man, is he to regulate and act up to it? By what means, then, is this wish to be implanted in the mind of a child? In many ways. First, by patience, gentleness, and truth, in the manner of the instructor: this will cause the pupil to look up to his moral and intellectual superiority; he will admire, and naturally wish to be like him. If a child remarks, when he comes out of school, "How crabbed the old gentleman has been to-day," you may feel sure little good has been done: the boy may have learned his lessons by heart, but no seed of that more valuable acquisition,—the love of learning, has been planted in his mind. Secondly, by inculcating a love of order and regularity. If this is not firmly fixed in a child's mind, when he grows up and his future education depends upon himself, his studies will be desultory, and his mind will not acquire that power and accuracy of reasoning which it might otherwise possess. Thirdly, by teaching the value of time. Let children play to their hearts' content—this is not idleness; if they do not play heartily, they will seldom work heartily: but habits of listless indolence, and sitting doing nothing, when ill-health is not the cause, should be gently corrected by precept, and still more by example. Fourthly, by teaching the habit of observing and reasoning upon little things. And, lastly, by making your instructions as interesting as the subject will permit, and never attempting to force on the young brain prematurely: for this will, in nine cases out of ten, give a disgust to learning altogether.

When all this is accomplished we shall probably find a substantial groundwork for the individual himself to work upon afterwards. He has learned order, industry, and observation; and these three combined must produce a wish for moral and mental improvement. This brings us to the second question: How, when the child becomes a man, is he to regulate and act up to these wishes? This should be done by his endeavouring steadily to promote his moral and intellectual growth, and can be performed to a great extent in the workshop as well as in the library. A man is neither called upon or permitted to forsake the daily duties of life for intellectual studies; but let him, in his youth, imbibe the three principles above mentioned—of order, industry, and observation, and it will be wonderful how much may be done with very

few advantages. We *may* pursue a course of study which will only render us disputatious and dictatorial: to prevent this, let us ever keep in view that triad of excellence, "The good, the beautiful, the true." Let us look for examples of goodness, rather than of evil, particularly among our fellow men; let us search for beauty, not deformity, in nature, and in that sublimest work of nature and God—the mind of man; and let us candidly bow before the truth, even when it interferes with our preconceived notions, rather than sophistically defend an error, because we have heretofore upheld it, and do not like to confess ourselves in the wrong.

Perhaps a few hints as to the manner in which this self-tuition is to be carried on, may not be unacceptable to the youthful student. Never attempt to do too much at once—it will only confuse your mind. Whatever subject you take up, devote your full energies to it, and read the work on which you are engaged steadily through, not dipping into it hither and thither, missing some chapters because they are dull, others because they are hard: this kind of reading may give you the appearance of great knowledge, and enable you to shine in general society, but it will be gloss rather than reality, and knowledge acquired in this way will seldom stand the test of close examination.—Of course there are works to which this does not apply, but they belong to the class of lighter literature, and are read as much for their amusement as for any other cause. It will often be a considerable help to the memory, also, if, while you study a work, you write down a short abstract of its contents—doing so will impress the facts upon your mind; but if you adopt this plan, you must not fancy that merely having the abstract in your possession secures the continuance of the knowledge itself in your brain: you must think over it, you must refresh your memory, if the facts seem slipping from you, by reading from time to time the abstract you have thus made; treated otherwise it becomes but a broken reed to your intellectual support. Do not be discouraged from attempting the study of any subject in which you take an interest, because others may tell you that you have not the ability or the opportunities, of doing so properly: there is no better means of improving the abilities than by exerting them; and as for the second objection, the want of opportunities, do the best with what lies in your power, and you will then be prepared to make good use of any further knowledge that may be thrown in your way. Rest assured in the meanwhile that the information thus acquired will not be the less sweet because it has been attained by a steep and rugged path.

Hitherto we have spoken only of the manner of studying; perhaps we may be allowed a few words also as to the choice of study. This is a most important branch of self-education. Look first dispassionately and carefully into your own mind, and see what is its natural bent. We will suppose you have an imaginative turn, and delight in works of poetry and description: read such works and enjoy them, but in moderation; if you indulge in them too much you will gradually give an undue ascendancy to your imagination, to the detriment of the other faculties of your mind,—and the true secret of self education is, to keep all in due subordination and maintain a just balance, so as to allow the judgment to work freely, unbiassed by any preconceived train of ideas. Again, let us imagine you are of a speculative turn of mind, and particu-

larly fascinated with metaphysical works; here we would repeat the caution with tenfold earnestness, because the more deeply we involve ourselves in studies of this kind the more fascinating they become, until they may so far engross us that we cease to take that interest in the ordinary affairs of every-day life around us, which we ought to do; we become visionary speculators, and at last are bewildered and lost in the confusion of our own thoughts; we have dwelt upon these subjects until all others have been deprived of that amount of consideration which is their due, and we cease to appreciate them rightly, for we have again overturned the balance of power in the human mind. Such, alas! we fear, has been but too often the case with many a noble mind, which, with proper discipline, was fit for better things. Let us not, however, be understood to say that metaphysical works in general are to be excluded from our course of study; on the contrary, there are few subjects which give the mind a more exciting exercise; but as medical science teaches us that the most valuable medicine may be converted into a deadly poison by immoderate use, so may mental food, unduly supplied, produce the same result also: if we do not keep our mental powers under our control, they will soon, like restive horses, run away with us whither they will.

This preservation of mental equilibrium is a great point to be considered in self-education, but it is not the only one; there is another also, which, though at first sight it appears distinct from the former, will on a little consideration be found to be intimately connected with it: it is, that we should carefully avoid assuming as our settled belief any new theory on any new subject. There is something in novelty which is apt either to fascinate or disgust us, according to our turn of thought; but in neither of these states is the mind free to act the part of an impartial judge. Give the case, therefore, your careful and earnest attention, and then lay it by for a time, as far as you can, in the storehouse of your memory, until all undue excitement of feeling either for or against the subject has cooled down, then bring it forward and see in what light it appears.

Do not be wearied with repeating this process again and again, if necessary. At each new review the matter will stand out in a clearer light to your mental eye; above all do not be afraid of having to avow to others the fact that you have not yet made up your mind what you will think,—it may often save you from the shame of saying, six months later, I have changed my mind again. If possible, also, where two rival theories are made to rest upon the same foundation, read both before you give in your allegiance to either: strong arguments will probably be brought forward on both sides; if you read those of one party only, you may be carried away by their apparent unanswerableness; but this will be acting the part of a judge who should listen only to the plaintiff's charge, and refuse to attend to the defendant's explanation: such a judge you would consider unworthy of a seat upon the bench. Are you fitted to decide any question by acting in a similar manner? One adherent who joins because his judgment, after a careful examination of the case, is convinced, is worth two who do so from the momentary satisfaction of hearing, like the Athenians, "some new thing," and whose judgment, unstrengthened by previous mental exercise, will be swayed by any fresh argument brought forward on either side, like a bulrush waving hither and thither in every breeze.

We will now endeavour to give a practical illustration of our theory, applied to the study of geology.

Let us suppose a man utterly ignorant of this science to commence with Dr. Buckland's "Bridgwater Treatise on Geology and Mineralogy." He will probably be deeply interested when he reads of the diluvial and volcanic changes which have brought the crust of our earth into the state in which it now exists. His imagination, possibly, will be captivated by the grandeur of the forces existing (according to Dr. Buckland) in those early times, compared to what they are now. He will picture to his mind's eye a vast incandescent globe, gradually cooling down, till the particles on its surface are so reduced in temperature as to approach and crystallize, thus forming a solid crust of occidated metal and metalloids, constituting the various rocks of the granitic series; but this crust will not remain a level surface,—he will perceive portions of it upraised by the expansive power of internal heat and vapour. Next, he will view the action of immense oceans, produced by the union of oxygen and hydrogen, spread over tracts of this primitive formation; and he will see there is no appearance of quietude and rest in this as yet lifeless and uninhabitable world.

As solid matter rises above the water, by the previously-mentioned internal action of heat, he will see that it becomes exposed to destruction by atmospheric agents;—by rains, torrents, and inundations, at that time acting with intense violence, washing down, in the form of mud, sand, and gravel, the detritus of the primary unstratified rocks, and depositing them upon the bottom of the then existing seas. Here they would have remained had not the ever-restless internal volcanic agent converted them, by its heat, into beds of gneiss, slate, &c., and again raised them above the level of the water into dry land. Again and again will he watch the same changes taking place, but as strata after strata is formed, altered, depressed, or raised, he marks that it is no idle, useless movement which is thus continually going on: the barren earth becomes gradually clothed with luxuriant verdure, land and water teem with life and happiness, and he recognizes, with gratitude and reverence, the fatherly hand of a divine Creator.

But should he close his book, and say, Now I know enough? Certainly not. He has yet but one foot within the threshold of science—he has read but one view of the case.

These grand volcanic and diluvial agents, whom he now supposes to act with such enormous energy, in the early stages of our planet's formation, are represented in a less impressive, but perhaps more sober point of view by other geologists; as producing, eventually, the same results indeed, but, by a long series of action, differing in nothing from that which goes on at the present day before our eyes. Let our student now take up a work of this class, say "Lyell's Principles of Geology." He will there be told, that "It was contrary to analogy to suppose that Nature had been at any former epoch parsimonious of time and prodigal of violence." He will be shown what the aqueous and igneous forces can and are doing at the present day, and will be gradually led forward towards the conclusion, that the same action we see going on before us now has been taking place in the same manner for countless ages before our existence. For example, to show us the force of currents in depositing sedimentary strata, Lyell gives us the following, amongst many

other striking illustrations:—The river Amazon which, after a long and rapid course, empties itself into the Atlantic Ocean, bears with it a vast amount of sediment, which, however, is not immediately deposited, that river retaining so much of its original impulse that its waters are not wholly mingled with those of the ocean at the distance of 300 miles from its mouth. During this transit it is crossed by the equatorial current, which, after flowing along the coast of Africa, crosses the Atlantic to South America, and passes along the northern coast of Brazil to the Gulf of Mexico. The sediment of the Amazon is thus constantly carried to the north-west, and an immense tract of swamp is formed down the coast of Guiana, with a long range of muddy shoals bordering the marshes, and becoming converted into land.

Again, when treating of volcanic agency, he gives a remarkable account of the effects of an earthquake which visited Chili in 1822, and produced a permanent alteration of level over an area of 100,000 square miles. The whole country, from the foot of the Andes to a great distance under the sea, is supposed to have been raised. The same process appears to have been going on for a long time previously; for, besides the beach thus newly raised above high-water mark, there are several older elevated lines of beach, one above the other, extending in a parallel direction to the shore, to the height of fifty feet above the sea.

Will it be said that if, in both these theories, the agents and the results are actually the same, only differing in intensity, and therefore in duration, if both equally exemplify the wisdom and goodness of our Lord, why pause so long on a subject of comparatively smaller moment?

We might answer the question by another. Is there no difference worth noting between the action of the wild tornado, which carries everything before it with terrific violence, and that of the trade-wind, which bears us along, possibly in the same direction, with steady and uniform motion?

But questions are not arguments; and we would rather answer our interrogator thus: Here are two views of one case, standing in opposition to each other; both, therefore cannot be true. It is of the utmost importance in the study of any subject, that we should not willingly deviate from the truth one hair's breadth in either direction. One false step may lead us on to a thousand others, and we cannot be too cautious against hastily adopting any conclusion, without viewing dispassionately all the arguments which may be brought forward on both sides. But another advantage arises from this mode of inquiry: while the student, in so doing, is only intent on making himself a sound geologist, he is unconsciously taking an important step forward in the higher art of self-education. He has not merely been storing his mind with facts, but been exercising, and thereby strengthening, his reasoning faculties and his judgment. He has been teaching them to perform the office for which they were granted to him. Had he said, "I need not trouble my head about these things," this lesson would have been lost.

But his geological studies will lead him to questions of far more importance, and far greater difficulty, than the one we have hitherto discussed, when he commences an examination of the fossiliferous deposits contained in the various strata.

Here he will see a gradual advance upwards, from the lowest to the highest type of existence. First, invertebrate animals, such as the gelatinous polyp, make their appearance. These are followed by fish, reptiles, birds, and mammiferous quadrupeds. In the lowest class, fish, the brain bears to the spinal cord only the average of two to one; in reptiles, of two and a half to one; in birds, of three to one; in the mammals, of four to one; while in man, it is twenty-three to one. Here are facts marking an evident progression, which has been accounted for by two distinct theories.

One class of geologists, supported by Oken and others, maintain that all things have arisen by a long series of development, from certain simple and primitive causes; that the greater has grown out of the lesser. That the creative impulse, if we may so speak, once given, required no subsequent act to support it. That the law of development was implanted in nature, and was in itself sufficient, without any subsequent laws to modify or counteract its agency. While they hold that the superintendence of the Deity is witnessed rather in support and maintenance of that one Almighty first, than in continued acts of successive creation.

Others, amongst whom we may class Hugh Miller as one of their ablest advocates, argue that all difference of species are final; that there is no such thing as development, and that the higher types were gradually introduced upon the earth by successive acts of separate creation, as the world became fitted to receive them. As a proof of this they point to the fact that, running parallel with the law of progression, there is another equally important, that of degradation. Thus, there was a time in which the ichthyic (fish) form, constituted the highest example of life; but the seas during that period did not swarm with fish of the degraded type that we now see. The higher fish races appeared first, and, subsequently, became degraded in character or reduced in size. The same thing may be noticed in the study of reptiles; and, indeed, there is not one of the great divisions of animal life in which we do not perceive that, in one prominent feature at least, the present is inferior to the past.

Here is a question that requires years of patient study and investigation before we can presume to say, "I am now entitled to judge on which side the truth appears to preponderate to my mind, and to that side do I give in my adhesion, not however as a blind partisan, but as a rational inquirer after truth. I may be mistaken in my judgment, but I have sought to make it dispassionate; and, therefore, while I do not blame others who may differ from me, I am at least entitled to the same amount of consideration from them also in return."

Heat and bitterness of controversy belong not to those who seek rather to teach themselves, than to conquer others; and to this class the earnest inquirer after the means of self-education must necessarily attach himself in pursuance of his one grand object. C.

IGNORANCE.—So long as thou art ignorant, be not ashamed to learn: he that is so foully modest as not to acknowledge his own defects of knowledge, shall in time be so foully impudent as to justify his own ignorance. Ignorance is the greatest of all infirmities, and justified the chiefest of all follies.—*Quarles.*

ON READING-BOOKS.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—Will you allow me again to avail myself of your valuable Journal, to express to J. S. G. my sense of the extremely courteous manner in which he has noticed the remarks I ventured to make upon "Disciplina Rediviva, No. 7;" and to say how cordially I agree with him in the hope, that this correspondence may indeed tend rather to the elucidation of truth than to "polemical discussion."

In his letter, J. S. G. remarks, "I do not presume to address myself to any other case than that of young men;" and he proposes to this class that they should limit their course of study to one subject only; but he does not seem to have reflected that in suggesting such a scheme, though he is addressing himself only to young men, yet he is, virtually, influencing the character of those of riper years also. Habit has such an inveterate power over the human mind, that if a young man pursues for several years one particular manner of study, the probability is, that when he becomes an old man, if he studies at all, he will continue to do so in the same way.

We would therefore ask, could not the natural tendency in youth to desultory habits be corrected in some other manner than that proposed by your correspondent?

J. S. G. takes up a youth at seventeen; let us first go back to an earlier period, that of childhood, when the mind is just opening, and is at least as vagrant and as difficult to fix upon one point as it can subsequently become. What is our mode of action, and how do we help to develop that child's faculties? by endeavouring, surely, to give him a good groundwork of general information. We do not tie one child down to classics, another to arithmetic; for we should at once see the absurdity of such a course. By proper variety we avoid wearying our pupil, while we plant in his mind a wish for further knowledge. Why should this plan be entirely discontinued, when we come to consider the education of children of older growth?

Because, says J. S. G., we wish to correct their desultory habits. Perhaps, however, this might be accomplished in a manner more advantageous to the young man's general tone of mind. Desultory habits are the fault of youth, but there is another equally dangerous, and equally to be guarded against—exaggeration,—the imagination being triumphant over the reason. Now, by continually directing the attention of a youth to one object, we foster this danger. What our minds are ever intent upon assumes an undue importance in our eyes: we have so long looked at "one planet," that we scarcely recognize the existence of the myriad suns beyond,—the one subject we have chosen assuming, to our imagination, an undue importance over all others.

Is there no other mode, then, in which we may correct these desultory habits? May it not be done by instilling, in early youth, the habit of real attention in whatever occupation we are engaged?

I would again repeat the phrase, that varied reading is by no means synonymous with careless reading. J. S. G. remarks on this sentence,—"I think that this point in the question, being the point at issue, should not have been dismissed by M. E. C. in a single clause of an affirmative

sentence. It looks to me like an undoubted *petitio principii.*" To avoid this, I will endeavour to explain what I understand by the words careless and varied. By careless reading, I mean reading without care and attention; and it is the exact contrary to attentive reading, when the whole energies of the mind are absorbed in the work which we are studying; our whole attention is fixed upon it, and we are endeavouring, as fact after fact is brought before us, to lay them side by side in the storehouse of our memory. By varied reading, of course I mean reading not confined to one particular subject. Now, I think it will be evident, that the term careless thus employed refers to the way, and not to the subject of reading, and that it is quite as possible to read carelessly on one topic as on many.

J. S. G. speaks of the astonishment and confusion produced in a youth's mind by an invitation to a correlative and simultaneous study of Chemistry, Political Economy, History, Moral Philosophy, Algebra, Arithmetic, and what not. Perhaps this is scarcely a fair view of the case: it is quite as possible to carry the theory of education which I have attempted to advocate too far in one direction, as, I venture to suggest, has been done on the other side. I would not attempt all these subjects at once, and yet they might each eventually have their fair share of our attention. Or, if our intellect, our time, or our opportunities, do not allow us to embrace all, we may at least hope to gain a rational acquaintance with a considerable number of them, if we really try, and set our heart upon success.

A certain amount of simultaneous study, too, may probably be admitted with advantage. Suppose the student to take up the history of his own country, why should he not, as a relaxation to his mind, interest himself also in the study of chemistry? One subject will relieve the other, and yet facts so collected in his mind from the two studies will not be of a character to interfere with each other. This would not have been the case if, while he studied the History of England one portion of the day, he had turned his attention a few hours later to the History of France, Germany, or Italy. The facts here would be of so similar a nature that they would clash in his mind, and confusion would be the result. So with chemistry: he can take up conjointly with it the study of language, mathematics, or metaphysics, better than he could the laws of another science, strictly so called, because confusion would again ensue. But it does not follow from this, that when he has made himself master of English history, he should not then commence that of France; or that when he has learned the grand laws on which the science of chemistry is founded, he should not then turn his attention to other sciences.

It is asked whether the stocking-weaver is "a less or more intelligent man for his dogged pursuit of one of the out-door sciences,—Botany, Entomology, or the like?" Certainly he is far more intelligent than the being whose whole thoughts and energies are devoted to his trade; but would he have been a less intelligent man if he had added to the study of botany that of any other subject to which his necessarily limited means gave him access? Of course it will often happen, that a man in such a position has so little time at his disposal that he cannot pursue a varied course of study. This is his misfortune, but no reason why others, who are more favourably situated, should narrow their studies in the manner which he is compelled, by circumstances, to do himself.

Shallowness and superficiality cannot, of course, be combated too strongly; but I would do so rather by inculcating habits of attention and comparison than by exclusiveness. Perhaps, however, the points at which we aim are somewhat different, and therefore the paths we pursue will be different also. The author of "Disciplina Rediviva" treating mainly on "the strengthening and culture of the faculties;" whilst our own thoughts are turned rather to such a "laying out of life studies" as will most promote the general enlargement of the mind.

But one other point appears to demand our attention in your correspondent's letter; namely, where he remarks that the concluding paragraphs of my preceding one go far towards conceding the point for which he contends; those paragraphs referring to the danger of overtasking the youthful brain. The idea there intended to be conveyed was a warning against extremes, and mistaking confusion for information; but as I have already touched upon this point in an earlier portion of my letter, perhaps it is unnecessary to enlarge upon it here.—I remain, Sir, yours truly, M. E. C.

CHAPLAINCIES TO WORKHOUSES AND PRIVATE PUPILS.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—On the principle of securing "the right men in the right places", and not having "the square men in round holes, and the round men in the square holes", I would say a few words on an important point.

Many clergymen are obliged to "take pupils" in order to support their families; this is a serious hindrance to the proper discharge of the duties of a large parish. In our union workhouses, there is an important and interesting class of persons—especially in the schools—which is commonly placed under the care of a chaplain who is also the curate of the parish, or of some adjacent parish, and who (of course) makes the union duty a *secondary* thing.

Now I venture to suggest that for a clergyman who takes pupils, the duties of chaplain of a union workhouse (as his sole ministerial charge) would often be found far more convenient than parochial duty?

The "union" is generally situated in a large market-town—accessible to people from different parts of the country. And the chaplain can usually fix his own times for attending at the union, and is not so liable to interruption as a parish pastor is. And if the union be his sole ministerial charge, he will carry a freshness and vigour into his work *there*, (being a kind of relaxation from his educational duties at home,) which can scarcely be expected from the hard-worked curate of a large parish, who devotes the "fag-end of his time" to the union. There are constant advertisements for union chaplains; the stipend being £50, £60, or £70, when there is only one Sunday service. As the chaplain can arrange his own time for service (within certain limits), so he might by "occasional Sunday duty" for other clergymen often obtain £30 or £50 more. And thus we might find "right places" for the *educational* clergy, and also bring an *efficient* class of chaplains to influence the rising generation of our pauper population. Yours truly

A CHAPLAIN.

December 4., 1855.

LITERARY STYLE AND COMPOSITION.

THE giant activity of the present day is one of its most characteristic features. In science, arts, and manufactures, the progress is ever onward, onward still; one discovery gives birth to another, one improvement leads the way for its successor. We proceed not on our course with the slow and faltering steps of our ancestors, but with the speed, though unfortunately not always the certainty, of our own railway travelling.

The same remarks apply to literature generally. There never was a period when a greater amount of works on all subjects issued yearly from the press; in all forms, of all characters, from the deepest scientific researches to the most puerile and infantine productions. We are almost overwhelmed with their multiplicity, and yet they continue to pour upon us like an ever-increasing flood. I cannot read even a quarter of the works of the present day, says the despairing student, gazing fearfully on the hopeless catalogue before him. But it is not necessary that he should; a large proportion of these works are useless, many are injudicious, and, we fear we must add, not a few positively objectionable.

We do not, however, wish that the impulse now given to the literary world should be in any way checked. The minds of all classes call loudly for information; they will not and they cannot remain in the state of stolid indifference prevalent in former ages. It is to meet this increasing demand for knowledge that the abundant literature of the present day above referred to has been produced. We are very far from objecting to its amount, but we will venture to say a few words as to its character; and in this we shall be greatly assisted by the able work of M. Antonin Roche, "Du Style et de la Composition Littéraire,"* a work greatly needed in the present day, and a counterpart to which we should gladly see in our own language.

If it is asked, How should we write? we would reply by inquiring first, What is the object of the writer? Is it to convey an amount of knowledge he has himself acquired to the mind of his reader? Is it merely to show off his own possession of such knowledge? Or, finally, is it in the view of making a pecuniary profit by such a labour? We ask these questions because the character of the book will necessarily depend upon their answer.

If the object is profit, the work will of course be made as agreeable as possible; every aid that illustration and adventitious ornament can give will be eagerly sought for; but the production will be, in its nature, ephemeral, and will probably pass out of sight and memory in a few years. Of the style and composition of such works we have, therefore, nothing to say; they belong strictly to the craft of book-making, and must be left to the paid book-maker.

Of the second class of authors—those who write for the display of their own knowledge—we have also little to say. Their works may be clever; but you meet the writer himself at every turn, and his style becomes nearly as offensive, from its conceit, as the manner of these individuals usually is in private society. Let us, therefore, here turn

---

* Du Style et de la Composition Littéraire, par Antonin Roche. Pp. 243. Paris: Jules Delalain, Rue de Sorbonne. London: Longman & Co.

our attention exclusively to the first class—those who write from a genuine wish for the diffusion of knowledge, and are endeavouring to add to the general stock,—that which they have themselves acquired. To them we would say, your object is good and worthy, but it is one that requires care, as there are many dangers to which the writers of the present day are peculiarly exposed.

It has been often said, that the literature of any country or period will show the prevailing feelings of the people at that period; and this will be the more so at the present day, because there are plenty of book-makers who will gladly avail themselves of any subject which, for the time, happens to be engrossing the public mind; even down to table-turning and spirit-rapping. They will think it a good speculation, and will write a book upon it. But the fault in all this is, that they follow, and thereby increase the popular fancy for the time being; they are led by the people, whereas the proper office of an author should be, like a teacher, to lead and guide; if the tone of the public mind is healthy, to foster that health; if vicious, to endeavour to reclaim it back to the paths of truth and soberness. Were this always done, our literature would still be a test of the feelings of our people; not because it has been led, but because it leads them; and an author who thus feels the responsibility of the position he holds will write with thought, and carefully, knowing that he is adding his mite to the weal or woe of his countrymen.

The style of writing has varied very much since the last century. The great fear that then seemed to haunt the minds of authors was that of being common place; and they expressed the simplest ideas by the grandest words and the most sonorous phrases: sacrificing truth and nature to certain conventional modes of expression and useless epithets. We, in the present age, do not often fall into these defects. This style of writing is offensive to our taste; but yet, perhaps, we are not more natural than the writers of the eighteenth century. Affectation is the bane of modern literature; a want of simplicity which is ill compensated for by flowery eloquence, and affected, because unnatural, comparisons. An occasional introduction of figurative comparisons does indeed give force and beauty to our style of writing; but we should carefully avoid those which violate the laws of possibility. For example, when we read the expression—"They drink a poison gilded over with pleasure," we at once see the impropriety of this figure. We may appropriately speak of gilded pleasures or gilded poisons, but we cannot of drinking gilded poisons. We might, however, with equal force and greater truth, speak of a poison concealed beneath the pleasures we enjoy, because the idea here intended to be conveyed by the term gilded—that is, covered or concealed by an outer surface of a different character to the interior—is still retained, though divested of its unnatural character. No comparison can be good that does not adhere to nature. Thus, when it is said that Napoleon wept tears of blood, his soldiers those of brass, there is an incongruity in the last figure, almost amounting to the ridiculous. If the soldiers wept tears of brass, why not those of iron; if of iron, why not cannon-balls at once? We may generally test the fitness of a comparison by thus carrying it on, and seeing whether it leads us to an absurdity. In the fifty-fifth chapter of Isaiah we find a most poetical figure beautifully carried out, in the words—"Instead of the thorn shall

come up the fir-tree, and instead of the brier shall come up the myrtle-tree." Here, the thorn and the brier are used to denote the wicked, because they are useless and injurious; while, on the contrary, the fir-tree and myrtle, being fragrant, useful, and ornamental, may properly represent the just, whose influence is so beneficial and pleasant. The metaphor here is drawn from nature, and therefore there is nothing in it strained or unnatural. Were writers of the present day to attend more to this subject, we cannot help thinking it would be a great improvement to modern literature.

Our style of writing should of course depend greatly upon the subject of which we treat. Poetry and descriptive works allow a freer scope to the imaginative power than those on science, history, or theology. On the latter subject especially, we should carefully avoid any flights of fancy. Occasionally we meet with theological writers, who attempt to paint before us the joys of heaven, and the horrors of hell, with such vividness that we are almost tempted to believe they must have been actually present at the places they thus describe. But such kind of composition is generally very injudicious; it springs from the imagination, and appeals to the imagination; whereas, while we adhere to the truths that have been revealed to us, our words flow from our hearts, and, consequently, appeal to the hearts of those who listen to us. Excitement is often mistaken for religion, and works of this character do but foster the delusion. Let it not, however, be supposed that we are advocating the cold dry style of the theological writers in the last century. Morally-religious works are dead, unless the spirit of religion is breathed into them; but surely the word of God revealed to us, is a safer source from whence to draw our spiritual feelings than our imagination can possibly be. The first consideration in writing a work on any subject, but more especially on theology, should be:—Are the statements I am now putting forth positively and accurately true, without any admixture of falsehood? If they are not, no eloquence or beauty of style can compensate for this radical defect.

All writers, we repeat, should bear this carefully in mind; one false statement invalidates the credibility of many true ones; but, after the theologian, there is no other class of author who ought to apply to himself the test, as to whether he has spoken the truth, the whole truth, and nothing but the truth, more carefully than the historian, because he has such powerful temptations to fall into error. It is a most difficult thing, in writing history, not to feel, and therefore not to show partiality, towards one side or the other. Much, both of ancient and modern history, is little else than a detail of the perpetual struggle between the noble and the serf, between the monarch and his people. A man whose feelings are enlisted on the side of monarchical power, will naturally, when he comes to the detail of historic facts, and the secret springs from which the actions there recorded flow, be inclined to represent those characters in the best light, and as actuated by the best motives, who in by-gone days maintained the principles which he now seeks to support. The democrat on the contrary, will, in describing the same events tinge them with the colour of his own mind, and dwell rather on the abuse of kingly than of popular power. Loyalty will be the watchword of one author; patriotism and freedom that of the other. Neither of these writers can be called impartial historians; and perhaps

there are few offices that require more care and anxious watchfulness for their proper fulfilment. The historian must separate himself from his own political feelings, he must rise above them as it were; he must remember that he is not in the position of a barrister, pleading for a cause, but of a judge, bound to give equal weight to the evidence on both sides. He should remember also, that it is the character of fellow-creatures with which he is dealing, and that he is no more justified in slandering the dead than in vilifying the living.

Whilst want of strict truth is the besetting sin of this class of writers, those who treat on scientific subjects are also exposed to difficulties, though of a different character. They are not tempted, like the historian, to conceal the truth; but they are inclined to express it in so technical a manner, that their works are fitted rather for those who are already well acquainted with the subject on which they treat than for the masses. To be really clear, we must not only well understand ourselves what we mean, but we must endeavour to make it easy of comprehension to others. "Every writer," says La Bruyere, "who would write clearly, ought to put himself in his reader's place, examine his own work as if it were something new, which he was reading for the first time, and which the author had submitted to his criticism; and should discover whether it is really intelligible, or whether it only appears to be so to *him*, because he understands *himself*." It is, as we before said, most important, if the author is really desirous of being comprehended, to avoid an unnecessary use of technical phrases, when the same meaning can be clearly understood by the use of ordinary words, as it gives an appearance of affectation or pedantry; the introduction of antiquated, foreign, or newly-coined words, which have not yet been generally received; of long periods, or difficult and involved sentences, should be still more carefully avoided; because, if the mind of the reader is over-taxed, he becomes weary, and throws up the work in disgust and fatigue.

If, however, to avoid this evil, scientific men do write in a popular style, they sometimes fall into a greater mistake. Whilst avoiding technicalities, they omit giving proofs of what they advance. They declare in language simple and easy enough, that such things are or are not so, but omit giving the reasons and arguments which have brought these conclusions home to their own minds; and though the reader may be deeply interested by these announcements, he cannot, if he is of an inquiring mind, be convinced by mere assertion.

The styles of writing may be divided under three heads—the simple style, the sublime style, and the flowery style.

In the simple style, the writer expresses his ideas without ornament or apparent art. Rollin compares this form of writing to a repast, where all the dishes have an excellent taste, but from which all studied *ragoûts* have been banished. It is more suited than any other for works of instruction, and in writing on simple and every-day subjects, and becomes more impressive than high-flown language, because it bears about it a greater stamp of truth. We believe that the author himself feels what he says, from the very fact that he does not attempt to dazzle our imagination, but states the circumstances simply as they are. As an example, how beautifully simple and expressive is that one short sentence in St. John's account of the raising of Lazarus—"Jesus wept!" What could have been added, that would not have detracted from the

deep feelings those words awaken in our hearts? Had the Evangelist amplified the subject to any amount in the succeeding verses, he would have destroyed the effect of what he had already said. Simplicity of style is a point which we cannot too strongly impress upon young authors, who are apt to mistake redundancy for grandeur.

The sublime style arises either from the grandeur of the thoughts and sentiments expressed, the magnificence of the language, the harmony and animation of the expression, or from all these causes united together. Thus, Moses is sublime in the words, "And God said, Let there be light, and there was light," because he brings before our eyes so grand and lively an image of the almighty power of the Creator. Again, what can be more striking than Bossuet's description of the universal extent of idolatry:—"All was God except God himself, and the world which God had made to show forth his power seemed to have become a temple of idols;" and he gives a most forcible idea of the folly of unbelievers, when he says, "They believe all, except the gospel." We will give but one further example of this style in an incident related by M. Antonin Roche:—

"A mother, menaced with the loss of her only son, gave herself up to despair, and when her spiritual adviser endeavoured to console her, by citing the example of Abraham, who prepared, on the reception of the Almighty's order, to sacrifice his son Isaac, exclaimed—'Ah! God would not have commanded such a sacrifice from a mother.' What words could have expressed more fully her sense of the depth and intensity of maternal love?"

In all these instances, however, and in many others which we might bring forward of the same character, there is no bombast or high-flown exaggerated sentiment; such additions would at once have detracted from the force and real sublimity of the passages as they now stand.

The flowery style appeals rather to the imagination than the reason, and makes use of a great redundance of ornament; but, like the flowers from whence it draws its name, it is more brilliant than solid, more elegant than energetic. This style is suitable, as M. A. Roche remarks, in works of pure amusement, "light ornament and graces being in their place when one has nothing serious to say." Did the limits of this paper permit it, we might here touch upon many minor yet still important points in the art of writing well, both as regards excellencies to be aimed at and faults to be avoided; but we can here only refer our readers to the clever work we have already mentioned, in which he will find copious details on all these subjects. C.

(To be continued.)

MORAL CONTAGION.—There is such a thing as *moral contagion:* and it acts nowhere more strongly than in a school-room. When we recollect, that a pupil will catch and carry through life the tone of his master's voice, or his habitual gesture, or even his handwriting, is it strange if he shall also bear through life the stamp of his temper and disposition?—*Lecture on Moral Influence, by S. A. Pears, B.D.*

ON MENTAL ARITHMETIC.

MENTAL Arithmetic is one of the most important branches of primary instruction. The faculty of mental calculation is almost as useful to a tradesman, or to an artisan, as the faculty of speech; and as an instrument of intellectual culture, mental arithmetic, when properly taught, takes the very highest rank amongst our branches of school instruction. Keeping in view the principles of utility and development, the subject should be treated not only in relation to its practical application, but also in relation to the development of the intellectual faculties of the pupils; that is to say, we must not only look to the *end* to be attained, but we must also carefully attend to the *means* by which that end can be most satisfactorily secured, consistently with the laws of intellectual and moral development.

The ordinary method of teaching mental arithmetic, by rules, without the exposition of principles, should be entirely discontinued: it is all but worthless as an instrument of mental culture, and it rarely succeeds in making boys skilful computers.

All the operations in mental arithmetic should be based upon intuitive process of reasoning; and the pupils should be led to give expression to every step of the intellectual demonstration. This not only exercises the minds of the pupils in the habit of reasoning and logical precision, but it also tends to give them that tact and skill in the management of arithmetical computations, which will enable them to work out any problem by the shortest and most elegant process.

There are two pro esses of thought, by which operations in mental arithmetic may be conducted. The one is based upon the observation of natural objects, taken as the representatives of numbers, without any regard to their symbolical forms; the other is based upon the operations of figures, taken as the symbols of numbers. Mental arithmetic, conducted by the first method, has been called INTUITIVE ARITHMETIC; because every step in the process is based upon an intuitive truth, which is more or less apparent to the observing faculties of the pupils; whereas mental arithmetic, conducted by the second method, is simply a process of technical arithmetic, where the ordinary rules and operations of slate arithmetic are followed in the mind of the pupil, or by the process of mental calculation; this method, therefore, is, in matter of fact, the ordinary technical method of calculation followed out mentally. The distinction between these two methods should be carefully kept in view by the teacher: he should never confound the two processes, or mix the one with the other, until his pupils are fully prepared to comprehend the relation they bear to each other. CHILDREN SHOULD BE FIRST TAUGHT ARITHMETIC ENTIRELY AND EXCLUSIVELY BY THE INTUITIVE METHOD. They should be taught to calculate expertly and accurately by this method, even before they are taught any thing relative to the notation of common arithmetic. The intellectual process, thus isolated from the technical, is pursued with a clear and simple perception of the intuitive properties of numbers, and the demonstrative steps in every investigation attain an intellectuality and a simplicity which it would be impossible to give to them by having recourse to the arithmetical symbols. It is a difficult matter to get

boys to follow strictly the intuitive exposition of the principles of numbers, after they have been taught the operations of technical arithmetic. Boys are too apt to disregard the interests of their higher faculties: they almost invariably shirk the exercise of their reasoning powers, when they can attain their object by an effort of the memory; they seldom undertake the labour of a demonstration when they can apply a rule.

After the intuitive system of arithmetic has been taught, the pupil may then pursue with advantage that higher kind of mental arithmetic which is based upon the notation and processes of technical arithmetic.

Mental arithmetic, therefore, may be divided into two kinds; viz., intuitive arithmetic, and the arithmetic of figures, or the arithmetic depending upon the ordinary notation of numbers.

INTUITIVE ARITHMETIC.

It has been observed, that the intuitive properties and operations of numbers should be taught from natural objects apart from their symbolical representations. The objects usually employed for this purpose are dots, marks, balls, counters, &c.; each object being regarded as a unit, or one thing. For ordinary school instruction, I prefer the use of dots and marks: thus four will be represented by •••• or by IIII. These dots, or marks, as the case may be, should be written distinctly and boldly with chalk upon the black board, as they are wanted, or as they may be required to demonstrate any particular property of numbers. I prefer this mode of extemporizing the arrangement of the units, to the ordinary form of the Pestallozzian Board.

This method of teaching arithmetic is pre-eminently suggestive; for example, if the teacher wants to show that three and two make five, he leads the pupils to the result in the following manner:—

••• and ••

After counting the first group of dots, they go on to put the units in the second group to them; thus three and one more make four, and one more make five; that is, three and two make five. It is scarcely necessary to say, that the master should never tell the pupils anything which they are able to discover for themselves.

The master should never leave a subject until his pupils are thoroughly conversant with it. The different branches of arithmetic are so connected with one another, that you cannot reach the higher branches until you have made good your footing upon the lower ones.

Problems suited to the minds of the children, bearing on the actual business of life, should be given after each exercise.

And after the principles involved in each exercise have been sufficiently elucidated, the application of these principles to slate arithmetic should be fully explained and illustrated. In this way the symbols of arithmetic will be stripped of their repulsive abstractions and associated with actual operations and practical principles. In all these exercises, the teacher should regard utility as the *means* for attaining an important *end*, and that end is the intellectual culture of his pupils. His immediate object may be utility; but his final purpose is to lay the sure basis of future progress and development.

EXERCISE I.

ADDITION AND SUBTRACTION.

Addition and Subtraction by Ones.

• and • make two,
one and one make two; one from two, and one remains.

•• and • make three,
two and one make three; one from three, and two remain.

••• and • make four; one from four, and three remain.

And so on.

Problems.

1. A boy had three marbles; I gave him one more; how many had he then?

2. I had four pence, and out of it I paid one penny for a pencil; how many pence had I left?

And so on.

These exercises and problems should be continued until the pupils are thoroughly conversant with the addition and subtraction by ones.

Addition and Subtraction by Twos.

• and •• make three,
one and two make three; two from three, and one remains.

•• and •• make four,
two and two make four; two from four, and two remain.

••• and •• make five,
three and two make five; two from five, and three remain.

•••• and •• make six,
four and two make six; two from six, and four remain.

And so on.

Problems.

1. I paid the grocer two pence for eggs, and five pence for butter; how much did I give him altogether?

2. I bought some oranges for seven pence, and some apples for two pence; how much should I pay altogether?

3. A boy had seven pence, and spent two pence of it; how much had he left?

4. Show, by counting your fingers, that five and two make seven.

5. I had to pay the draper two pence; what change should he return me out of six pence?

And so on.

These exercises, &c., should be continued until the pupils are thoroughly conversant with the addition and subtraction by twos. This observation will also apply to all the exercises which may be hereafter given.

Addition and Subtraction by Threes.

• and ••• make four,
one and three make four; three from four, and one remains.

•• and ••• make five,
two and three make five; three from five, and two remain.

••• and ••• make six,
three and three make six; three from six, and three remain.
•••• and ••• make seven,
four and three make seven; three from seven, and four remain.
And so on.

Problems.

1. I have five pence in one pocket, and three pence in the other; how many pence have I altogether?
2. I had seven shillings, and gave away three of them; how many shillings have I left?
3. A woman bought some eggs for three pence; what change should the shopman give her out of a shilling, or twelve pence?
4. I paid four pence for sugar, and three pence for some barley; how much did I pay altogether?
5. A butcher had eleven sheep, and killed three of them; how many sheep had he left?

And so on to the addition and subtraction by fours, fives, sixes, sevens, &c.

Mixed Questions in Addition and Subtraction.

1. I paid three pence for treacle, five pence for sugar, and two pence for barley? how much did I pay altogether? *Ans.* Ten pence.
Here actually putting the pence down,—

••• and ••••• and •• make ten.

2. Add five and seven together, and then take away four from the sum. *Ans.* Eight.
3. I had nine pence in my pocket this morning; but I paid, out of it, three pence for a book, and four pence for paper; how many pence have I left? *Ans.* Two pence.
And so on.

The Symbols of Addition, Subtraction, and Equality.

The sign of addition is + or plus; that of subtraction — or minus; and that of equality = or equal. The following *figures* stand for the *number* of marks placed over them :—

•	••	•••	••••	•••••	••••••	•••••••	••••••••	•••••••••	••••••••••
0	1	2	3	4	5	6	7	8	9	10

Exercises showing the use of Symbols.

1. ••• + •• = •••••;
3 + 2 = 5.

2. •••• + ••• = •••••••;
4 + 3 = 7.

3. ••••• — •• = •••;
5 — 2 = 3.

4. •••• — ••• = •
4 — 3 = 1.

5. •• + ••• + • = ••••••;
2 + 3 + 1 = 6.

6. ••• + •••• — •• = •••••;
3 + 4 — 2 = 5.

And so on.

T. TATE.

(*To be continued.*)

MINUTES OF COUNCIL.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—At a recent meeting of the "Ayrshire Certificated Masters' Association," I was appointed to draw your attention, and through your Journal; that of the teachers of the country, to a recent minute of council, by which we are informed future volumes of reports will not be sent to teachers. This we consider a loss, and I doubt not many others will think so too. It is proposed to send a memorial to London regarding it; but with the advice of an inspector we are anxious to carry along with us the teachers of the country. The plea of expense set forth in the minute is an exceedingly paltry one. But something like the following plan might perhaps do. Let only the administration part be sent to committees, and the Report, as heretofore, to certificated teachers. The hints and suggestions of inspectors are almost of no use, unless they are in the possession of the teacher. Their very variety helps to sustain an independent teacher against the vague and impracticable theories of particular inspectors. In the assurance that you will continue to plead on behalf of the teacher, I have taken the liberty of addressing these lines.—I am yours, &c., J. G.

Kilmarnock.

VALUE OF INSPECTION.—I have inspected numerous schools in various parts of the country, and connected with different religious denominations—for, in an educational point of view, I feel an interest in all,—and although a majority of these have been connected with the National Society, yet I have come to the conclusion that Government aid and inspection, in the way in which it is given—I do not say it is impossible to improve it—is invariably a benefit, and that, generally speaking, schools not inspected, and not receiving aid, are inferior in teaching power and efficiency. I say this not merely on my own authority, but also on the authority of others who have ample means of judging; and I see many schools suffering from the crotchets of individual managers, who would, I am confident, if they had time and opportunity to look into the matter in all its bearings, see good reason for altering their opinions.—*Dean Dawes' able Lecture at Huddersfield.*

PROGRESS IN KNOWLEDGE.—He that would make a real progress in knowledge must dedicate his age as well as youth, the latter growth as well as the first fruits, at the altar of truth.—*Berkeley.*

Intelligence.

NEW BOARD OF EDUCATION.—One of the measures contemplated by the Cabinet for early adoption this session, is, we understand, the re-organization of the Committee of Council on Education, so as to vest the administration of its present, and probably of enlarged functions, in a new government department, similar in organization to the Board of Trade, with a "minister of education" at its head. This important post will, we have reason to believe, be offered to Lord John Russell, whose signal and efficient services to the cause of public instruction have earned for him the gratitude of its friends in all ranks, classes, and religious bodies, and whose return to the Cabinet, and to official usefulness in that dignified sphere, will meet with general approval, should our expectations be verified.

UNITED ASSOCIATION OF SCHOOLMASTERS.

THE following notice of the Second Anniversary of this Association appeared in the *Times* of Friday, the 28th December :—

"A body which, under this title, has entered the second year of its existence, opened its annual meeting yesterday at the rooms of the Society of Arts, in the Adelphi, under the presidency of Mr. Tate, a gentleman well known for his educational works. The proceedings of this meeting will not be concluded until to-day, but are of a character so professional in the main, as to be unsuited for any lengthened notice. From the report of the acting committee we gather that the association now numbers nearly 250 members, of whom about 100 reside in or near the metropolis. As there are said to be some 40,000 teachers in the United Kingdom, the association is obviously still in its infancy, and it seems to be struggling at the outset with financial difficulties; but there seems little reason to doubt, from the earnestness of the men engaged in the union, from the usefulness of the course which they have chalked out for themselves, and from the temperate and able manner in which their discussions are conducted, that every year will find them increasing in importance and influence. The association is founded on a strictly professional basis,—religious distinctions, except in the case of Roman Catholics and Jews, being entirely ignored. Among the subjects brought forward for consideration at this meeting are included the following :—'The best Method of Teaching Mechanics in Schools,' 'The Teaching of Reading,' 'Rational Gymnastics as a Branch of Education,' 'The Teaching of History and Geography,' and 'Infant Gardens.' Besides, however, topics of this description, it came out in the course of the proceedings yesterday, that the association aspires hereafter to overlook and protect the interests of schoolmasters as professional men, especially in their relations with the clergy and the Committee of Council on Education: not that they propose to do so in any intemperate or hostile spirit, for the services rendered by the Committee of Council to the cause of education were most warmly acknowledged by the speakers; but some of the minutes are objected to, and on other points it is felt that the schoolmasters' experience may be turned to account in giving an increased impulse to to the spread of elementary instruction. Thus, it was made the subject of complaint that the Privy Council, in its anxiety for superior scholarship in the master, did not pay sufficient attention to his qualifications as a teacher, and that the remuneration given to him for the time spent on his pupil-teachers was made dependent on their progress instead of his services. It was also suggested that, the parents of the children whom it was most important to get into schools, being, in a large number of cases, recipients of out-door relief, an education test should be attached to such relief. There seems, on the whole, good ground for believing that an association of this kind may do good service to a great public cause, and we hope to see it gradually increase in strength and usefulness."

A full report of the meeting may be had on application to the Corresponding Secretary, Mr. J. Tilleard, 17, Scarsdale Terrace, Kensington.

The following is the programme of the meetings to be held during the remaining portion of the present session :—

MEETINGS OF THE UNITED ASSOCIATION OF SCHOOLMASTERS.

ST. MARTIN'S HALL, LONG ACRE, LONDON.

Session 1855-56.

SATURDAY, FEBRUARY 2, 1856.

Discussion on the Method of Teaching Geography, to be opened by MR. TILLEARD.

MINUTES OF COUNCIL.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—At a recent meeting of the "Ayrshire Certificated Masters' Association," I was appointed to draw your attention, and through your Journal; that of the teachers of the country, to a recent minute of council, by which we are informed future volumes of reports will not be sent to teachers. This we consider a loss, and I doubt not many others will think so too. It is proposed to send a memorial to London regarding it; but with the advice of an inspector we are anxious to carry along with us the teachers of the country. The plea of expense set forth in the minute is an exceedingly paltry one. But something like the following plan might perhaps do. Let only the administration part be sent to committees, and the Report, as heretofore, to certificated teachers. The hints and suggestions of inspectors are almost of no use, unless they are in the possession of the teacher. Their very variety helps to sustain an independent teacher against the vague and impracticable theories of particular inspectors. In the assurance that you will continue to plead on behalf of the teacher, I have taken the liberty of addressing these lines.—I am yours, &c., J. G.

Kilmarnock.

VALUE OF INSPECTION.—I have inspected numerous schools in various parts of the country, and connected with different religious denominations—for, in an educational point of view, I feel an interest in all,—and although a majority of these have been connected with the National Society, yet I have come to the conclusion that Government aid and inspection, in the way in which it is given—I do not say it is impossible to improve it—is invariably a benefit, and that, generally speaking, schools not inspected, and not receiving aid, are inferior in teaching power and efficiency. I say this not merely on my own authority, but also on the authority of others who have ample means of judging; and I see many schools suffering from the crotchets of individual managers, who would, I am confident, if they had time and opportunity to look into the matter in all its bearings, see good reason for altering their opinions.—*Dean Dawes' able Lecture at Huddersfield.*

PROGRESS IN KNOWLEDGE.—He that would make a real progress in knowledge must dedicate his age as well as youth, the latter growth as well as the first fruits, at the altar of truth.—*Berkeley.*

Intelligence.

NEW BOARD OF EDUCATION.—One of the measures contemplated by the Cabinet for early adoption this session, is, we understand, the re-organization of the Committee of Council on Education, so as to vest the administration of its present, and probably of enlarged functions, in a new government department, similar in organization to the Board of Trade, with a "minister of education" at its head. This important post will, we have reason to believe, be offered to Lord John Russell, whose signal and efficient services to the cause of public instruction have earned for him the gratitude of its friends in all ranks, classes, and religious bodies, and whose return to the Cabinet, and to official usefulness in that dignified sphere, will meet with general approval, should our expectations be verified.

UNITED ASSOCIATION OF SCHOOLMASTERS.

THE following notice of the Second Anniversary of this Association appeared in the *Times* of Friday, the 28th December :—

"A body which, under this title, has entered the second year of its existence, opened its annual meeting yesterday at the rooms of the Society of Arts, in the Adelphi, under the presidency of Mr. Tate, a gentleman well known for his educational works. The proceedings of this meeting will not be concluded until to-day, but are of a character so professional in the main, as to be unsuited for any lengthened notice. From the report of the acting committee we gather that the association now numbers nearly 250 members, of whom about 100 reside in or near the metropolis. As there are said to be some 40,000 teachers in the United Kingdom, the association is obviously still in its infancy, and it seems to be struggling at the outset with financial difficulties; but there seems little reason to doubt, from the earnestness of the men engaged in the union, from the usefulness of the course which they have chalked out for themselves, and from the temperate and able manner in which their discussions are conducted, that every year will find them increasing in importance and influence. The association is founded on a strictly professional basis,—religious distinctions, except in the case of Roman Catholics and Jews, being entirely ignored. Among the subjects brought forward for consideration at this meeting are included the following :—'The best Method of Teaching Mechanics in Schools,' 'The Teaching of Reading,' 'Rational Gymnastics as a Branch of Education,' 'The Teaching of History and Geography,' and 'Infant Gardens.' Besides, however, topics of this description, it came out in the course of the proceedings yesterday, that the association aspires hereafter to overlook and protect the interests of schoolmasters as professional men, especially in their relations with the clergy and the Committee of Council on Education: not that they propose to do so in any intemperate or hostile spirit, for the services rendered by the Committee of Council to the cause of education were most warmly acknowledged by the speakers; but some of the minutes are objected to, and on other points it is felt that the schoolmasters' experience may be turned to account in giving an increased impulse to to the spread of elementary instruction. Thus, it was made the subject of complaint that the Privy Council, in its anxiety for superior scholarship in the master, did not pay sufficient attention to his qualifications as a teacher, and that the remuneration given to him for the time spent on his pupil-teachers was made dependent on their progress instead of his services. It was also suggested that, the parents of the children whom it was most important to get into schools, being, in a large number of cases, recipients of out-door relief, an education test should be attached to such relief. There seems, on the whole, good ground for believing that an association of this kind may do good service to a great public cause, and we hope to see it gradually increase in strength and usefulness."

A full report of the meeting may be had on application to the Corresponding Secretary, Mr. J. Tilleard, 17, Scarsdale Terrace, Kensington.

The following is the programme of the meetings to be held during the remaining portion of the present session :—

MEETINGS OF THE UNITED ASSOCIATION OF SCHOOLMASTERS.

ST. MARTIN'S HALL, LONG ACRE, LONDON.

Session 1855-56.

SATURDAY, FEBRUARY 2, 1856.

Discussion on the Method of Teaching Geography, to be opened by Mr. TILLEARD.

SATURDAY, MARCH 1.
Paper by Mr. E. SIMPSON, *on the Schoolmaster's Relations with the Government.*

SATURDAY, APRIL 5.
Paper by Mr. T. MURBY, *on the Method of Teaching Singing.*

SATURDAY, MAY 3.
Paper by the Rev. C. R. ALFORD, *on the Character of the Teaching of our Lord.*

SATURDAY, JUNE 7.
Paper by Mr. F. R. CRAMPTON, *on the Government of Pupil-Teachers.*

The Chair is taken at Six o'clock in the Evening precisely. The Acting Committee meets at Eight o'clock on the same Evenings.

J. TILLEARD, *Corresponding Secretary.*

Teachers desirous of being enrolled among the members should forward the subscription for the current year to the Corresponding Secretary. The amount of the annual subscription is *five shillings* for schoolmasters, half a crown for Schoolmistresses.

GLOUCESTERSHIRE RAGGED AND INDUSTRIAL SCHOOL MEETING.—On the 10th ultimo, a public meeting at the Shirehall, at Gloucester, presided over by Lord J. Russell, took place in aid of the funds of this flourishing institution. The school-house, of which the site was presented by the Dean and Chapter, is situated in the centre of the lowest part of the city, where 140 boys receive a plain practical education until noon. They are taken entirely from the most depraved and destitute class of the populace. In the afternoon the elder boys work in the ground rented of the Corporation for that purpose, about half a mile off, where the master resides, and which is admirably cultivated by their labour, yielding produce which enables the Committee to give the young labourers their dinner. At 11 o'clock the proceedings began with an examination of the school, conducted by Joseph Bowstead and J. C. Symons, Esqrs., two of Her Majesty's Inspectors of Schools, and the Rev. J. Emeris, in which Lord J. Russell, who was accompanied by his daughter, took a part. The children acquitted themselves well in each branch of perfectly elementary instruction, displaying much of that vivacity and shrewdness characteristic of their class. The Committee and the parochial Clergy, and Dissenting Ministers, were present, and, with a large party, then accompanied the noble Lord to the work-ground, where forty of the working boys had already arrived, and were busily employed in digging. At 1 o'clock Lord John took the chair at one of the largest meetings ever assembled in the Shirehall. The Rev. John Emeris, the Hon. Secretary, having read the annual Report, the noble Chairman delivered (in the opinion of many present) the best speech he ever made on the paramount duty of giving sound education combined with industrial training—fitted for their position in life, to the classes who must live by their labour —and in favour of similar schools, as an element in the restoration of the lowest classes to the ranks of independent industry. Several resolutions to the same effect were then moved and seconded, and speeches made successively by W. Price, Esq., M.P., E. Holland, Esq., M.P., Jelinger Symons, Samuel Bowley, T. Barwick Baker, W. Curtis Hayward, T. Gambier Parry, Esqrs., and by the Revs. Messrs. Coghlan and Emeris. We have, however, no room for even an abstract of any of the speeches.

Notices.

TO CORRESPONDENTS.

*** Notes of Books and Questions and Answers are unavoidably postponed by press of Advertisements.

"J. E. W." is declined with thanks; the subject had better be left to "J. S. G." and "M. E. C."—"F. A. P." and others in our next.

Mr. McLeod's Lecture in our next.

Papers not reaching us by the 20th are generally too late.

HUNDREDS OF TEACHERS AND THOUSANDS OF PUPILS

Have found their work lightened and expedited, and the study of the once dreary "words and meanings" made interesting, delightful, and effective, by using

CHRISTIE'S

CONSTRUCTIVE ETYMOLOGICAL SPELLING-BOOK,

Which is now adopted in several Training Colleges and Model Institutions, and is making its way extensively into Schools from which the old-fashioned rote Spelling-Books have been deservedly and definitively banished.

Specimen pages may be obtained through any Bookseller, or will be sent, post-free, and a specimen copy, for 18 stamps, on applying to the Author, Mr. J. A. CHRISTIE, Duke of Bedford's School, Milton Abbot, Tavistock.

Liberal allowance to the Trade.

London: ARTHUR HALL, VIRTUE, & Co., Paternoster Row; and may be had of all Booksellers.

SCHOOLMASTERS' AND GENERAL MUTUAL ASSURANCE SOCIETY.

ESTABLISHED 11TH MAY, 1849.

OFFICE, 25, BRIDGE STREET, WESTMINSTER.

Rev. C. B. DALTON, M.A.; PHILIP CAZENOVE, Esq., *Treasurers.*

NOTICE.—By a recent alteration in the Rules, the NAME of the Society is changed from the CHURCH OF ENGLAND SCHOOLMASTERS' AND SCHOOLMISTRESSES' MUTUAL ASSURANCE SOCIETY to the SCHOOLMASTERS' AND GENERAL MUTUAL ASSURANCE SOCIETY, and is now open to other Teachers besides those engaged in Church of England Schools; and to the public generally Assurances may now be effected to the extent of £200, and among others, where the policy is made payable on the Assured attaining fifty-five or sixty years of age, or at death, if that event should happen previously.

Prospectuses, Forms of Proposal, &c., may be had on application, or by letter, addressed to SAMUEL J. I. HIND, Secretary.

EDUCATIONAL GRANTS BY THE COMMITTEE OF COUNCIL.

Just published, cloth, price 1s., post-free,

CLASSIFIED ABRIDGMENT

OF THE

MINUTES OF COUNCIL ON EDUCATION,

With all information requisite for School Managers, Teachers, and Proprietors about to erect Schools.

BY SIMON S. LAURIE,

Secretary to the Education Committee of the Church of Scotland.

*** Members of Parliament will find this Analysis useful.

Edinburgh: THOMAS CONSTABLE & Co. London: HAMILTON, ADAMS, & Co.

In the Press, price Threepence, crown 8vo.,

ON THE PRESENT ASPECT OF EDUCATION;

An Address, delivered, by Request of the Members, at the Annual Meeting of the Associated School-teachers of the Dioceses of Gloucester and Bristol, on the 16th December, 1855, in the Cathedral Library at Gloucester; the Venerable ARCHDEACON THORP, B.D., in the Chair.

By JELINGER SYMONS, Esq., B.A., H.M. Inspector of Schools, &c.

Published at the Request of the Meeting.

London: GROOMBRIDGE & SONS.

SERIES OF CATECHISMS BY THE REV. HENRY STRETTON, M.A., Minister of St. Mary Magdalen's, Chiswick.

Just published, price 2d., or, in wrapper, 3d.,

The Scholar's Manual of Devotion and Sacred Formularies; including the Church Catechism, the little Psalter, &c. This little work forms one of the graduated Series of Catechetical works which the Author is preparing for the schools and youth under his direction, and of which the following are already published:—

THE CHILD'S CATECHISM. By the Rev. H. STRETTON, M.A. 1d.

A CATECHISM OF FIRST TRUTHS OF CHRISTIANITY Introductory to the Church Catechism. 1d.

THE CHURCH CATECHISM EXPLAINED AND ANNOTATED, principally as an aid to the Clergy in Catechizing in Churches. Part I. Price 1s. cloth, interleaved, 1s. 6d.

THE CHURCH CATECHISM EXPLAINED, for the Aid of Young Persons. Part I. Abridged from the above. Price 2d.

To be followed shortly by

THE CHILD'S BIBLE CATECHISM. It is hoped to furnish the Christian child in the above Catechisms with all such fundamental instruction in our holy religion as may be necessary to them. Nothing would appear to be more wanting in the education of young persons than a series of sound Catechetical works *arranged on a system*, and expressly with a view to direct the thoughts of the learner constantly to the most necessary things.

London: J. MASTERS, Aldersgate-street, and New Bond-street.

This day, fcap. 8vo., price 5s., cloth, red edges,

Studies in English Poetry. With Short Biographical Sketches, and Notes Explanatory and Critical. Intended as a Text Book for the higher Classes in Schools, and as an Introduction to the Study of English Literature. By JOSEPH PAYNE. Third Edition, revised.

Also, in 18mo., price 2s. 6d. cloth, 3s. gilt edges,

SELECT POETRY FOR CHILDREN, in Schools and Families. By JOSEPH PAYNE. Twelfth Edition.

ARTHUR HALL, VIRTUE, & Co., 25, Paternoster-row.

ETON GREEK GRAMMAR IN ENGLISH, BY TAYLER.

The Rudiments of Greek Grammar, as used in the Royal College at Eton; literally translated into English, with the Notes. By the Rev. H. J. TAYLER, B.D. New Edition, 12mo., 4s., cloth.

London: SIMPKIN, MARSHALL, & Co.

A Help to Latin Grammar, with easy Exercises, both English and Latin, and Questions. By J. WRIGHT, M.A., Head Master of Sutton Coldfield School. Price 4s. 6d.

"This book aims at helping the learner to overstep the threshold difficulties of the Latin Grammar; and never was there a better aid offered alike to teacher and scholar in that arduous pass."—*Journal of Education.*

By the same Author, price 3s. 6d.,

THE HELLENICA; OR, HISTORY OF GREECE, in Greek. Used in Rugby, Birmingham, and other Schools.

"A good plan, well executed."—*Guardian.*

Cambridge: MACMILLAN & Co. London: BELL & DALDY.

NEW PHRASEOLOGICAL ENGLISH-GREEK LEXICON.

In 8vo., price £1. 1s.

A Copious Phraseological English-Greek Lexicon, founded on a Work prepared by J. W. FRADERSDORFF, Ph.Dr., of the Taylor Institution, Oxford; revised, enlarged, and improved by the late THOMAS KERCHEVER ARNOLD, M.A., formerly Fellow of Trinity College, Cambridge, and HENRY BROWNE, M.A., Vicar of Pevensey, and Prebendary of Chichester.

London: RIVINGTONS, Waterloo Place.

BOOK POSTAGE.

CIRCLE OF KNOWLEDGE, 200 LESSONS.

BOOK OF BIBLE HISTORY, 132 LESSONS.

MANUALS TO THE ABOVE, FOR TEACHERS.

Mr. Baker will forward, post free, to any School-Manager, Master, Mistress, Pupil-Teacher, or Sunday-School Teacher, a single copy of any of his books, on receipt of two-thirds of the retail price in postage-stamps.

A Priced List will be forwarded on application to Mr. BAKER, Eastfield House, Doncaster.

CIVIL SERVICE EXAMINATION PAPERS.

"I. Read the subjoined documents, observing carefully the difficulties referred to in the despatch, and the justification which they were considered to afford for the course pursued by the Governor of the Colony.

2. Give a *short* analysis of the Colonial Act.

3. Write a letter from the Secretary of State for the Colonies approving or disapproving of the course pursued. In either case give your reasons at length.

"EXTRACT of a DESPATCH from the Lieut.-Governor of the Colony of VICTORIA to Sir JOHN S. PAKINGTON, dated Melbourne, December 2, 1852.

The enclosed Act to facilitate the apprehension of offenders is so novel in its character, and so stringent in its provisions, as to demand some preliminary explanation of the circumstances under which it was introduced.

Her Majesty's Government will have been fully made aware, through one channel or another, of the extent to which the discovery of gold in Victoria has affected the population of the neighbouring colonies. It must be evident that the transported convict has fully felt this influence; and it is undeniable that, from the outset, not all the vigilance exercised by the authorities availed to prevent a very considerable influx of all classes into this colony.

Having once eluded the vigilance of the authorities in Van Diemen's Land, our own laws and regulations opposed no sufficient obstacle to their introduction; and it was soon seen that numbers of persons under sentence of transportation were intermingled with the crowds in the towns, and thronging to the gold fields. Many of the class of ticket-of-leave holders are known to have come to the colony, to have amassed wealth, and returned to Van Diemen's Land. But numbers of other classes who thus effected their escape, suddenly released from the coercive discipline to which they had been subjected, and in full liberty under circumstances so favourable to their views, engaged at once in the perpetration of the most daring outrages.

The certainty that such was actually the case, and the feeling that, beyond the damage and injury resulting to individuals and to the community, the population of the colony became open to an imputation of a degree of lawlessness and criminality with which it was not fairly chargeable, justly roused the public indignation. It not only strengthened the hands and the cause of that section of the community which had long come prominently forward to advocate the cessation of transportation upon the broad grounds of its inexpediency and of the injury which, even under ordinary circumstances, that system must entail upon these colonies, but it made every individual in the community alive to the evils which that system might involve and bring to his own door.

A bill, seeking in some degree to cope with this difficulty, and to which allusion had been made by me in my opening address to the Council, was in course of preparation, and was about to be introduced, when the intentions of the Government were anticipated by an elective member obtaining leave to bring in a "Bill for the apprehension of

97282

offenders illegally at large, and their ready transmission to the countries from which they escaped." The zeal and haste of the framers of this bill had induced them to overlook many salient principles of constitutional liberty; but as the evils sought to be redressed were of no ordinary magnitude, compromising to an alarming extent the maintenance of public order and the security of property, at the same time that they threatened to necessitate an expenditure for police protection, and the administration of criminal justice tantamount to one third of the whole revenue as then collected, it was considered highly desirable on the part of the Government to show every disposition to co-operate heartily with the colonists; at the same time that it performed its duty in seeking to mitigate the severity of the proposed enactments, and in giving a more constitutional impress to the measure thus introduced, and received with a degree of popular enthusiasm. The result is the bill which I now submit for consideration, but to which I have felt it my duty, under the extraordinary circumstances of the times, to yield the royal assent. It has been called for by the peculiar exigencies of the period, and therefore limited in its duration to two years. It professes to deal with a class, and with that class only, which has not already violated positive enactments, but abused the indulgence extended to them.

It is impossible to exaggerate the evils with which this Act seeks to grapple; and I would direct attention to the criminal returns which I have appended, from which it will be seen to what extent the amount of crime is influenced by the introduction of those illegally at large into this commnnity, and the circumstances in which they find themselves placed.

The clauses subsidiary to the chief object, although objectionable as tending to fetter inter-colonial trade and trench on private rights, were necessarily introduced to render the Act operative.

It need scarcely be observed that on various occasions of local or agrarian disturbance, Her Majesty's Government have been compelled to pass measures more penal than the present, extending even to the temporary suspension of the Habeas Corpus Act; and the statute book of New South Wales still contains several Acts as coercive in many of their provisions.

Persons to whom Her Majesty has been graciously pleased to grant a remission of sentence have been protected, and the royal prerogative of mercy has been saved.

The surrounding circumstances and unparalleled features of the case being considered, and the main object of the Act kept steadily in view, it will, I trust, be considered that the measure is not more rigorous than was imperatively demanded.

I am enabled to state that, since the Act came into force, the mere fact of its existence has been undeniably favourable to the state of the colony. It is seen not only to deter many from running the hazard of an infringement of its provisions, but, taken into connection with the course adopted by the Lieut.-Governor, Sir William Denison, in stationing in Victoria certain active agents for the detection and apprehension of offenders transported to Van Diemen's Land and illegally at large, has had the effect of driving a very considerable number of the worst characters out of the colony.

Enclosure in the preceding Despatch.

No. XIII.

An Act to facilitate the apprehension and prevent the Introduction into the Colony of Victoria of Offenders illegally at large.

[The whole Act follows, of which one section will suffice as an example. It contains sixteen sections.]

1. Any master-mariner or other person owning, commanding, navigating, or sailing any ship, vessel, or boat for the trip or voyage, when any such ship, vessel, or boat shall bring to any port or other place in the colony of Victoria any runaway convict, or any convict coming under cover of any conditional pardon, ticket of leave, or indulgence of any kind, other than a free pardon or remission of his or her sentence by Her Majesty, shall, upon conviction thereof before any two justices of the peace having jurisdiction within the said colony, or any portion thereof, for every such offence be liable to a fine not exceeding one hundred pounds, or to imprisonment for any time not exceeding six months, or to both, at the discretion of the said justices.

[C.] LATIN TRANSLATIONS.

Livy.

"Cum jam humanæ opes egestæ a Veiis essent, amoliri tum Deûm dona ipsosque Deos, sed colentium magis, quam rapientium, modo, cœpere;" &c., [ending with]—"Quod decem æstates hyemesque continuas circumsessa, cum plus aliquanto cladium intulisset, quam accepisset, postremo, jam fato tum denique urgente, operibus tamen, non vi, expugnata est."

Virgil.

"Hic Ammone satus, rapta Garamantide Nymphâ, &c.

[Ending with]—

Quippe tuis ferimus, famamque fovemus inanem."

Tacitus.

"Vespasianus acer militiæ, anteire agmen," &c., [ending with]—"Tribuni centurionesque et vulgus militum industria licentia, per virtutes per voluptates, ut cuique ingenium, adsciscebantur."

Horace.

"Divis orte bonis, optime Romulæ
Custos gentis, abes jam nimium diu: &c.

[Ending with]—

"Sicci mane die: dicimus uvidi,
Cum sol oceano subest."

HISTORY.

1. When, and how, was Christianity first introduced and finally planted in England?
2. Mention the principal events in the life of Edward I.

3. Under whom were the crowns of England and Scotland united?
4. When did the English power in France come to an end?
5. When, and how, did Great Britain become possessed of India and Canada?
6. Name four celebrated English admirals, with the sovereigns under whom they lived.
7. What is the Habeas Corpus Act?
8. Give a short account of the life of one of the following great men:—The Black Prince, Marlborough, Lord Chatham.
9. Name the great civil wars which have taken place in England, and the causes of any one of them.
10. Name the principal battles in the Peninsula, with the years in which they were fought.

12th July, 1855.

[A.]

ARITHMETIC (Elementary).

1. Add together—

3	5	8	4	2	9	1	8
7	4	9	3	3	4	2	6
2	9	4	9	7	5	8	8
4	6	3	7	5	9	5	7
2	7	1	3	9	6	0	9
8	5	7	4	2	9	7	8

2. Add—

£.	s.	d.
4 7 6 2	13	$9\frac{1}{4}$
2 8 3	17	$7\frac{1}{2}$
6 1 6	19	$6\frac{3}{4}$
7 3 5	8	4
3 9 9	7	$11\frac{1}{2}$
9 3 7	15	$10\frac{1}{4}$

3. From 4 3 1 1 2 6 0 0 7 3
Take 4 3 1 7 1 6 2 8 5

4.

	£.	s.	d.
From	2 1 9 0 6 1	10	$5\frac{1}{4}$
Take	6 9 3 5 2	13	$6\frac{3}{4}$

5. Multiply 865317997 by 8.
6. Multiply 437962093 by 793.
7. Multiply £56289. 13*s.* $7\frac{3}{4}$*d.* by 9.
8. Multiply £4751. 17*s.* $4\frac{1}{2}$*d.* by 34.
9. Multiply £1647. 8*s.* $2\frac{1}{4}$*d.* by 635.
10. Divide 106397320524 by 12.
11. Divide 8740434091488 by 876.
12. Divide £75919. 11*s.* 7*d.* by 7.
13. Divide £611360. 5*s.* 8*d.* by 623.
14. Write in figures (1) ninety thousand and forty, (2) three hundred and four million forty thousand and four.
15. There are two mountains such that if 126 feet are added to four times the height of the lower one, the sum is half the difference between the heights; given that the lower one is 441 feet high, find the height of the other.
16. What is the length of the longest day at a place where the sun rises on that day at 3 h. 49 m. 51 s.?
17. How many entire days have elapsed since the opening of the Great Exhibition in Hyde Park?

[B. 4.]

ARITHMETIC.

REDUCTION.

1. Reduce 375 cwts., 2 qrs., 1 st., 13 lb. to ounces.
2. Reduce 36 miles, 3 furlongs, 36 poles, 5 yards to feet.
3. How often will a wheel $3\frac{1}{4}$ yards in circumference turn between London and York, the distance being 198 miles?
4. How many pounds of silver are there in 270 spoons, each of which weighs 1 oz., 13 dwts., 8 grs.?
5. How many seconds are there in 35 d., 8 h., 48 m., 29 s.?
6. How many square yards, feet, and inches, are there in the top of a table, the sides of which are 21 ft. $7\frac{1}{2}$ in. and 19 ft. 5 in.?
7. How many solid yards, feet, and inches, are there in 175,983 solid inches?

PROPORTION.

8. If £59. 10*s.* will buy 25 cwts. 2 qrs. of sugar, what quantity will £6. 14*s.* 2*d.* buy?
9. If the penny loaf weighs 5 ounces when wheat is at 62*s.* the quarter, what ought it to weigh when wheat is 64*s.* the quarter?
10. If, by paying down £70. 17*s.* 6*d.* a person becomes entitled to £2. 9*s.* 7*d.* a year, what income should he gain by paying £2,151. 17*s.* 8*d.* in the same way?
11. If a tax on an income of £1,132 amount to £125. 1*s.* $5\frac{7}{8}$*d.*, what is that in the pound?
12. If the carriage of 107 cwt. 10 lbs. cost £37. 9*s.* $7\frac{1}{2}$*d.*, what would the carriage of a ton cost?
13. If 24 men, working 8 hours a day, can build a house in 70 days, in how many days might it be built by 42 men working 10 hours a day?

PRACTICE.

14. Find the value of 373 at £2. 16*s.* $10\frac{1}{4}$*d.*
15. What is the rent of 67 acres of land for 2 years, 9 months, 11 days, the yearly rent of an acre being £2. 5*s.*?
16. Find the value of 9 tons, 4 cwt., 3 qrs., 21 lbs., at £14. 15*s.* 9*d.* per ton.
17. Find the price of $217\frac{1}{4}$ yards of lace at £2. 17*s.* $7\frac{1}{2}$*d.* per yard.
18. What is the price of 329 yds., 3 qrs. 2 nls. at 5*s.* $2\frac{1}{2}$*d.* per quarter?
19. What is the dividend on £2,734. 16*s.* 8*d.* at 9*s.* $4\frac{1}{2}$*d.* in the pound?

INTEREST.

20. Find the interest on £1,257. 15*s.* for $5\frac{3}{4}$ years at 4 per cent. per annum.
21. Find the interest on £194, at 5 per cent. per annum from the 3rd of March to the 18th of December following.
22. At what rate per cent., simple interest, will £951. 7*s.* 6*d.* amount to £1,141. 13*s.* in five years?
23. Find the discount on £594. 14*s.* 9*d.*, due 8 months hence, at $5\frac{3}{4}$ per cent. simple interest?
24. When the Three per Cents. are at £85. 17*s.* 6*d.*, what is the rate of interest?
25. Find the amount of £225 for 3 years, at £$4\frac{1}{5}$ per cent. compound interest.

VULGAR FRACTIONS.

26. Add together $\frac{2}{5}$, $\frac{3}{7}$, $\frac{4}{11}$, and $\frac{3}{15}$ of $7\frac{4}{5}$, and subtract the result from $3\frac{3}{35}$.
27. Multiply $\frac{3}{5}$ of $\frac{7}{11}$ of 15 by $\frac{14}{15}$ of $12\frac{3}{7}$.
28. What number, multiplied by $\frac{3}{5}$ will give $15\frac{3}{5}$ as the product?
29. If $\frac{2}{7}$ of a quarter of wheat cost 54*s.*, what will be the price of $\frac{4}{9}$ of a bushel?
30. What fraction of half-a-crown is $\frac{2}{9}$ths of 6*s.* 8*d.*?
31. Add together $3\frac{5}{8}$ pounds, $9\frac{3}{7}$ shillings, and $2\frac{4}{5}$ pence?

DECIMAL FRACTIONS.

32. Add together ·130055, 900, 57·1, 13·34 and ·00000397, and subtract the result from 1314·9.
33. Multiply 95·376 by ·0283.
34. Divide 16 by ·2, and the result by ·0002.
35. Express $\frac{241}{15424}$ as a decimal.
36. Reduce 8*s.* $11\frac{1}{4}$*d.* to the decimal of a guinea.
37. Add together ·3211 of a guinea, $\frac{3}{8}$ths of a crown, and ·6925 of a shilling, expressing the result as a decimal of a pound.

LOCAL WORDS.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—In furtherance of the design already ably recommended in your Journal, I send a few local words in use in the county of Surrey.

Crudle (*croodle*), to grumble.
Dummer, to pore over books, tasks, &c.
Gruff, to growl or snarl.
Hacker, to hesitate.
Lewdlin, silly, imbecile.
Picksome, dainty, nice.
Scroop, to creak.
Spat, to slap, to smack.
Spuddy, thickset, stumpy.
Wiver, to flicker.

One cannot help suspecting, that if glossaries of local *patois* were more generally compiled, and if those that do now exist were more carefully used by our writers on the English language, some very curious results would be obtained, as well as a great accession made to our ethnographical knowledge of the English counties. In Yorkshire, for instance, how large a vocabulary might be collected of words, either quite peculiar to certain parts, or at least obsolete elsewhere. In the district of Craven the language of the common people is quite remarkable for its diversity from the ordinary English dialect; in Lancashire and Cumberland there are hardly less striking peculiarities; and from Cornwall it is probable that many Celtic or British words might still be recovered. I remember hearing a country lass from Lincolnshire call backbiting by the happy compound, *tongue-banging*; and the same unsophisticated maiden described a close atmosphere as *mulfery*.—

I am, Sir, your Well-wisher and Subscriber, F. A. P.

ON TEACHING READING.

Part of a Lecture delivered before the United Association of Schoolmasters at the Second Anniversary Meeting. By WALTER MCLEOD, Esq., F.R.G.S., Head Master of the Model School, and Master of Method, in the Royal Military Asylum, Chelsea.

ERRORS IN READING.

Errors in reading may be classed under the heads of (1) Errors in Enunciation, (2) Errors in Pronunciation, (3) Errors in Accent, (4) Errors in Emphasis.

Enunciation.

The errors in enunciation may be classed under the heads of *feebleness, omission of letters,* and *obscureness of sound.*

1. *Feebleness.*—The air is too often expelled from the lungs without any energy. Feebleness marks the sounds that are made. To remedy this, let the *tongue, teeth,* and *lips* be used forcibly.

2. *Omission of Letters.*—The omission of letters or sounds is a common error; it arises from *hurry* and *feebleness.* It is common to omit the *d* in the word *and,* and *e* in the word *several.*

3. *Obscureness of Sound.*—The sounds of the voice are, in many cases, very obscure. One sound is run into another, or, what is far worse, a sound is uttered which is unknown to our language; all this arises from *carelessness, hurry,* and *feebleness* in the use of the several organs of speech. As examples of obscure enunciation, *e* is changed into *u,* as *momunt; a* into *i,* as defend*int.* To remedy the evils referred to, the children should be carefully practised in exercises which promotes the deliberate and forcible use of the organs of speech.

Pronunciation.

Pronunciation is the art of giving the true sound of letters in words, and the true accent and quantity of syllables. It includes the knowledge and practice of most of the points already noticed.

1. Pronunciation attends to the exact sound of letters in words. Letters, as they appear in words, undergo some changes. They have different sounds; *a,* for instance, has four sounds, as, in *fate, hat, father, law.*

2. Pronunciation attends to accent. Accent, or stress of voice, may be placed on any syllable; it should be on the right one; as, pérfume, scent; perfúme, to scent.

3. Pronunciation attends to the quantity of vowels and syllables. This is a nice point, and adds much beauty to speech; thus, if we say lunăcy for lunăcy, we make a mistake regarding the particular sound of the letter *a.* This, then, is an error in pronunciation.

Errors in Enunciation and Pronunciation.

The following are the most common errors that occur in reading, as regards enunciation and pronunciation.

1. When pronouncing the word *and,* there is a tendency to cut off the *d,* or to omit the initial letter *a.* These mistakes happen, for the

most part, when the conjunction *and* comes immediately before a word beginning with a vowel; thus, he and I went, would be pronounced, he *an* I went; ham and eggs, ham *an* eggs, &c.

2. The words *of the* are also shortened so as to become merely *the*, or *th*; thus, the beak of the eagle would be made to assume a variety of forms; as, the beak of th' eagle; the beak o' th' eagle; the dog and the horse=the dog 'n th'orse.

3. The word *to* is often contracted to the letter *t*; *be* becomes *b*; as, my duty *t'wards* God is to *b'lieve* in Him.

4. Small words, too, are frequently omitted altogether; at other times, different words are substituted for those in the sentence, as, *no* for *on*; *nor* for *for*; *of* for *if*; *in* for *on*; and *vice versâ*. The greatest care should be exercised with respect to these small words, as the sense of a whole passage, or the point of an entire argument, frequently depends on such simple monosyllables.

5. In some cases the letters are misplaced, and quite a new word is formed, which often has no meaning whatever. This is a curious mistake, and arises from a want of connection between the perception of form and the sound of words; thus, *scold* becomes *sclod*; *form* becomes *from*; *calms* becomes *clams*, &c. Thus—

With easy course
The vessels glide; *unless* their speed be stopped
By *dead calms* (clams).

Errors of the above description may be remedied by practice in analyzing words into their component sounds. Instead of requesting the children to spell the word that has been incorrectly pronounced, let it be analyzed into its separate sounds: thus, scold, s-c-old=scold; f-orm =form; c-alms=calms. By dissecting words in this manner, their true pronunciation will easily be obtained.

6. Errors frequently occur in the pronunciation of the vowels *e* and *o*, when these vowels are found in syllables at the beginning of a word. In such cases they are either omitted altogether, or their true sound is lost, through careless articulation and enunciation. Their correct sounds are heard in *re-vere*, *pro-vide*; but we have such pronunciations as, *b'hold*, *b'fore*, *cummit*, *cullect*, for *be-hold*, *be-fore*, *com-mit*, *col-lect*, &c.

7. The letter *a*, when compounded with words, is often, and erroneously, made long. Such mistakes occur in the words, *a-bout*, *a-fraid*, *a-way*, &c. If we give to these words the *long*, instead of the obscure sound of *a*, we accent both syllables, which is not in accordance with the genius of the English language; for words that are dissyllables admit of only one accent. The only exception to this rule is the word *a-men*, which is accented both on the first and second syllable.

8. The vowels, a, e, o, u, are incorrectly pronounced or obscured, or omitted, especially when they occur as middle syllables of a word. Although vowels in such a position ought never to be rendered prominent, they should always be clearly and distinctly articulated. Thus:—

(1.) *E* and *o* are omitted in the following words:—*ev'ry* for *every*; *tott'ring* for *tottering*; *hist'ry* for *history*, &c.

(2.) *U* is omitted in the following words:—*artic'late* for *articulate*; *reg'lar* for *regular*; *pop'lation* for *population*; *sing'lar* for *singular*.

(3.) *O* and *u* are changed or obscured in such words as,—*oppersite* for *opposite*; *elŭquence* for *eloquence*; *wumman* for *woman*; *pŭt* for *pūt*; *pūnish* for *pŭnish*. *I* is sounded like *ei*; as, *Peilate* for *Pilate*.

(4.) *Oo*, having the second sound of *o*, as in *moon*, is sounded as *u* in *bud*; thus, *good* becomes *gud*; *stood*, *stud*; *livelihood*, *livelihud*. Again, where *oo* should have the sound of *o* in *moon*, it is sounded as *o* in *more*; thus, we have *pore* for *poor*; *more* for *moor*, &c.

(5.) *Ea*, which has the long sound of *e*, is pronounced like *a* in *pare*; as, *fare* for *fear*; *hare* for *hear*; *apparance* for *appearance*, &c.

(6.) *Au*, which has the sound of *aw* in *law*, is pronounced like *o*; as, *Sol* for *Saul*; *becose* for *because*, &c.

(7.) The diphthong *oi* is sounded like *i*; as, *pint* for *point*; *jint* for *joint*.

(8.) The diphthong *ei* is sounded like *a*; as, *desave* for *deceive*; *belave* for *believe*.

(9.) The diphthong *ew* is sounded like *u* in *rude*; as, *stude* for *stewed*.

(10.) The diphthong *oe*, having the sound of *u*, is sounded like *oo*; as *dooz* for *does*.

(11.) The diphthong *ou* is sounded like *ow* in *now*; as, *growps* for *groups*.

9. At the beginning of words, mistakes also frequently occur in pronunciation; thus, *un* is changed into *on*; as, *onclean* for *unclean*; *onleavened* for *unleavened*; *onto* for *unto*.

10. The syllable *su* is changed into *shu*; as *shupreme* for *supreme*; *shuicide* for *suicide*.

11. In terminations we have the following:—*a*, *ah*, *aw*, as terminations, having the sound of *ah* and *aw*, and the vowel *o*, are all pronounced as if they had the letter *r* affixed to them; thus, *idea* is called *idear*; *law*, *lawr*; *Noah*, *Noahr*; *tobacco*, *tobacker*; and we have *drawring* for *drawing*.

12. The termination *ing* is sometimes sounded like *in*, and sometimes as *ink*: thus, *nothing* is called *nothin*, or *nothink*; *having* is called *havin*; *saving's bank*, *savin's bank*.

13. *En*, *ain*, and *eign*, are changed into *ing*; as, *garding* for *garden*; *founting* for *fountain*; *sovering* for *sovereign*.

14. The syllable *ture* is sounded as *tshur*; thus, we have *natshur* for *nature*; *featshur* for *feature*, &c.

15. The syllable *ous* is sounded like *chus*, or *yus*; as, *covetchus* or *covetyus* for *covetous*; *tremendyus* for *tremendous*, &c.

16. The letters *fs* are sounded as if written *ves*; as, *scarves* for *scarfs*; *wharves* for *wharfs*, &c.

17. The letters *ols* are sounded like *els*; as *idels* for *idols*.

18. The letters *ews* are sounded as *ooze*; as, *nooze* for *news*.

19. The termination *th* is changed into *t*, and the terminal letter *t* becomes *th*; thus, we have *fift* for *fifth*; *sixt* for *sixth*; *heighth* for *height*; and *nŏting* for *nothing*.

20. Many words are left unaspirated; as, *edge* for *hedge*; *ouseolder* for *householder*; and other words are aspirated which ought not to be; as, *hanimal* for *animal*; *Halps* for *Alps*; *haccept* for *accept*.

21. *V* is changed into *w*, and *w* into *v*; as,

Veal, wine, and vinegar, are very good victuals I vow=
*W*eal, vine, and *w*inegar, are *w*ery good *w*ictuals I wow.
I *v*ill call on you *v*en I go through the *w*illage.*

22. We hear, too, such pronunciations as the following:—*massacreed* for *massacred*; *exaggerate*† for *exaggerate*; *mountainious* for *mountainous*; and many others.

Errors in Accent.

1. The errors in accent consist in transferring the accent to syllables which custom neither warrants nor authorizes. Thus dissyllables accented on the second syllable have the accent transferred to the first; as, *de'tail* for *detail'*; *de'tain* for *detain'*.

2. Polysyllables are erroneously accented on the second or third syllable instead of the first; as, *contra'ry* for *con'trary*; *interest'ing* for *in'teresting*; *lunat'ic* for *lu'natic*; *chastise'ment* for *chas'tisement*; *prophecy'* for *proph'ecy*; *maintain'ance*‡ for *main'tenance*.

3. Polysyllables are also erroneously accented by putting the stress on the first syllable instead of the second; as, *com'mendable* for *commend'-able*; *pre'cedency* for *preced'ency*; *con'densate* for *conden'sate*.

4. We have errors of quantity and accent when we say *ora'tor* for *or'ator*; *prō'gress* for *prog'ress*; *prō'duce* for *prod'uce*; *testimō'ny* for *testimon'y*.

5. We have errors in the accentuation of words immediately derived from the Greek and Latin; as, *apostrōphe* for *apos'trophe'*; *anemōne* for *anem'ony*; *extempōre* for *extem'pore'*; *antipōdes* for *antip'odes'*.

Mistakes in Emphasis.

1. Children are very apt to make the little words in a sentence emphatic; such as *the*, *my*, *to*, *a*, &c. It will be found, as a general rule, that the emphasis is placed on prepositions and pronouns. Thus, they would say—

Load *the* tall bark, and launch *into the* main;

making the *articles* and the *preposition* the most emphatic words in the sentence. This is a habit that ought to be carefully guarded against.

2. *The*, before a word beginning with a vowel, should have the long sound; but before a word beginning with a consonant it should have the obscure sound, as in the second letter of the word *bet*.

3. *My* should always be pronounced with the short sound of *i*, unless in emphatic expressions or in solemn style; and, in the latter, only in phrases directly associated with solemnity. Familiar phrases, even in serious and solemn style, should retain the short sound, thus:—Mȳ hand, mȳ heart, mȳ mouth; so also in phrases of address, as, Mȳ friends, mȳ countrymen. Alas! mȳ noble boy! that thou shouldst die!

4. The article *a* is often pronounced with the sound of *a* in *hate*, instead of *a* in *hat*; thus—

And in ā storm of fury shakes the ground.—For
And in ă storm of fury shakes the ground.

---

* These are used chiefly by the *uneducated*.
† With *both g's hard*. ‡ Also an error in pronunciation.

Errors of this description should be avoided, as rendering pronunciation formal, precise, and mechanical.

5. "How often do we hear, 'Lord have mercy *upon* us.' Now, if two books lie one on the other, and I send a person for the uppermost, I say, 'the book which is *upon* the other;' I mark the word *upon*, to impress the contrast between 'upper' and 'under.' Is that what we mean in 'Have mercy *upon* us?' If not, the emphasis is absurd, and suggests a false meaning, or hides a true one." And again, "Follow almost any reader through our prayers, underline the words on which he lays the emphasis, and, in nine cases out of ten, we should find the marks chiefly under prepositions and monosyllables, or even syllables near the end of a sentence, or its members, to the utter confounding of all sense and meaning."*

The chief reason of mistakes with respect to emphasis seems to be, that children are taught to read sentences which they do not understand; and as it is impossible to lay the emphasis right without perfectly comprehending the meaning of what one reads, they get a habit of reading in a monotone, or, if they attempt to distinguish one word from the rest, as the emphasis falls at random, the sense is usually perverted, or changed into nonsense. The way to prevent this is to put no book into their hands which is not suited to their capacities, and to take care that they never read anything of which they do not fully comprehend the meaning.

---

1. When teaching the younger children to read, let them read *first* each word in rotation, as it occurs in the book; then to a stop, whether comma or semicolon; and lastly to a full stop.

The teacher should first read the word or sentence, and then require the children to repeat it after him, sometimes an individual boy, at other times the whole class. This is the most effectual method of obtaining a correct pronunciation.

2. A child should not be required to spell and respell a word in order to obtain its true pronunciation; for, in almost every case, the spelling of a word is no index whatever to its pronunciation. Let the teacher pronounce the word clearly and distinctly; afterwards, the child or class. The spelling may come as an exercise after the pronunciation has been acquired.

3. When a child reads too fast, he should be required to pause after every word, until the evil is remedied, thus:—The—eye—is—the—organ—of—sight;—the—ear—of—hearing, &c. Unless they be taught to read slowly, and to distinctly enunciate every word, they would read the above in this manner:—Thy is th'organ of sight, thear of earing.

4. When a sentence is read badly, the teacher should show how it ought to be read, both as regards enunciation, accent, emphasis, and pronunciation; and then the child should be required to read it until he is able to do so correctly.

5. Mistakes should never pass unnoticed; where this is not attended to, a two-fold evil is the result—the child is not taught what is right,

---

* "English Journal of Education."

and he is allowed to form habits of carelessness and inaccuracy, which, at a later period of his school life, it is difficult to eradicate. Besides, the others in the class will also be liable to make the same mistakes, when such words occur in the sentences which they are called upon to read. Care should be taken that one word is not *run into another;* that the words, *the, of, to, my,* &c., are not left out, nor have other words substituted for them; but that each word is distinctly and clearly enunciated. The above evils arise from reading *quickly;* hence the necessity of reading *slowly,* and attending to the stops.

Care, too, must be taken to see that the termination *ing,* that the dipthongs *ea, aw, oo,* &c., receive their correct sound; and that words beginning with *a* or *e* are not aspirated, and on the other hand, that the aspirated letters are not dropped where they ought to be pronounced.

6. The usual mode of reading in rotation should at times be dispensed with. Where this plan prevails, each child prepares himself upon the verse or sentence which he calculates will fall to his turn, and during the rest of the lesson he is dreaming of something else. To remedy this evil, let the teacher, as the lesson proceeds, call upon one here and there to read, beginning at the word where the last stopped, in whatever part of a sentence such word may be. By this means, all will be kept on the alert, as no one knows who may be called upon to continue the reading.

7. It may sometimes happen, that the child who has just read a verse or sentence, considers himself at perfect liberty, for some time at least, to amuse himself as best he may. Should such a disposition manifest itself, the teacher, by calling on such a one to read, *immediately after he has finished what he considered his lawful share,* will show him that the eye of the master is continually on him; that there is no escape; that inattention and listlessness are out of the question. How often have we observed a boy secretly and busily counting the verse that will, as he supposes, fall to him. He is enjoying the secret satisfaction of being able to read, with some credit, verse 13, when lo! he is summoned to read verse 9! and when this verse has been read, he fancies he may give himself up to pleasant dreams of his own, until it comes to his turn again; his juvenile speculations are, however, abruptly terminated by his being called upon to continue the reading of verse 11.

8. It is an excellent exercise to make a child read two sentences, or until he is told to stop; or he may be required to read to a stop, whether comma, semicolon, or period.

All the children in a class may be numbered, and during a reading-lesson all those with odd numbers may read first, afterwards those with even numbers.

When the scriptures are read, each child should be required, occasionally to read two verses, or to a full stop.

9. Every child when reading should stand erect, and turn his face towards his teacher; he should also hold his book in his left hand, and keep the book at such a distance from his mouth as will allow the free emission of sounds. If the book is held close to the mouth the sounds are driven backwards, and neither the teacher nor the majority of the class can hear what is being read.

10. Children should never be allowed to read a sentence in that dull, monotonous, hum-drum style, which too frequently characterizes our schools, and which many carry with them through life; such reading

wherever heard is as fatiguing to the reader as it is painful to the hearer, while good reading affords equal delight to both.

11. The teacher should, as an occasional exercise, read each sentence of a lesson, giving all the proper pauses, intonations, inflections, emphasis, and other variations; and then require the child or class to repeat the sentence, until it can be properly read. This should be patiently continued until good reading becomes habitual. The proper and easy use of tones, emphasis, and inflections, is partly a matter of taste and partly mechanical. The child must acquire the *habit* of reading *well* by the *practice* of reading *well;* prevention is better than cure.

12. But rules are not sufficient in teaching any branch of knowledge, neither are they sufficient in teaching reading. The learner must have not only rules but lessons, instructions, and examples,—*living* examples, "line upon line, and precept upon precept." Consider what long and diligent practice is required in order to play upon a musical instrument; and shall we grudge the care and labour of acquiring the perfect use of that divinely-constructed instrument—the human voice?

13. Let not the faithful teacher consider any time or patience lost which may be required to train his scholars to the habit of reading with spirit and force. In addition to the important practical uses of good reading, he may be assured that the great ends of education—cultivating the intellect, and forming the young and tender mind to virtue and usefulness—are promoted by no branch of knowledge more effectually than that of reading. Too much attention can hardly be given to this. It is the opinion of experienced teachers, that good readers hardly ever fail of being good scholars in other branches. It is even said, that, with a few rare exceptions, a division of the school into classes according to their proficiency in reading, will commonly answer all the purposes of classification in the other studies; or, in other words, it is rare to find a good reader who is not a good scholar.

SOCIAL ADVANTAGES OF FEMALE EDUCATION.—Due cultivation of the female mind would add greatly to the happiness of males, and still more to that of females. Time rolls on, and when youth and beauty vanish, a fine lady who never entertained a thought into which an admirer did not enter, finds in herself a lamentable void, occasioning discontent and peevishness. But a woman who has merit, improved by a virtuous and refined education, retains in her decline an influence over the men, more flattering even than that of beauty; she is the delight of her friends, as formerly of her admirers. Admirable would be the effects of such refined education, contributing no less to public good than to private happiness. A man, who at present must degrade himself into a fop or a coxcomb in order to please the women, would soon discover that their favour is not to be gained but by exerting every manly talent in public and in private life: the two sexes, instead of corrupting each other, would be rivals in the race of virtue: mutual esteem would be to each a school of urbanity; and mutual desire of pleasing would give smoothness to their behaviour, delicacy to their sentiments, and tenderness to their passions. Married women in particular, destined by nature to take the lead in educating their children, would no longer be the greatest obstruction to good education by their ignorance, frivolity, and disorderly manner of living.—*Lord Kaimes.*

ON THE STUDY OF THE ANGLO-SAXON LANGUAGE.

(*Concluded.*)

THE actual number of foreign words in the language, great as this is, is not the worst feature of the case. A still greater evil is the national tendency to adopt others as fast as they are wanted, without reluctance and apparently without limit, instead of producing them by a process of home-manufacture. In some languages, there appears to be a perfect reliance upon their own resources for the expression of new ideas. Whenever, in the progress of the arts, or in the wide ranges of human thought, it becomes necessary to employ some new word for the expression of some new shade of meaning, it is always done, in a language of the kind now under consideration, by some new combination or fresh moulding of the materials already existing. Such a process begets a habit, and with the habit a facility, in the formation of compound and derivative words, that in the end render a language in the highest degree flexible and expressive. Such is the truly infinite power of combination in a language so formed, that it is impossible to conceive an idea which the language does not furnish within itself the means of completely expressing. But, how different is this from the condition of the English. Every new fashion from the French milliners, every new dish from the French cooks, every new dancing-woman from the French stage, every new singer or fiddler from the Italian opera, every discovery in science, every invention in art, even too often the arts and wants and inventions that spring up indigenously among ourselves, have to be made known to the public under some foreign term. Such is the fashion; and fashion in language, as in most other things, is supreme. The writer of a treatise for every-day use, who, instead of calling it a 'Manual,' should call it a 'Handbook,' which is honest English, would be regarded as an innovator and a pedant, and his book would be very quietly consigned to the "tomb of the Capulets." Even our great lexicographer, Noah Webster, with all his learning and all his temerity, had not the courage to call his 'Dictionary' a 'Word-book.'

How different have been the fortunes of the English from those of the German. These two languages, in the commencement of the race, started even. They were both of the same common stock. Their parents, the old Saxon and the old German, have a common ancestor in the venerable Gothic. Cradled in the impenetrable forests of the elder Europe, they were in the fifth century in the same incipient formative condition. The German, hemmed in on all sides, but not invaded, was led, by circumstances, to draw upon its own resources for the invention of new terms to express the new ideas which became evolved in the onward progress of civilization. Hence has resulted a language capable of expressing, by combinations of its own native words, every shade of meaning required even by the teeming brains of that nation of students—a language uniting infinite diversity of forms with entire simplicity of materials. How different the English!—a conglomerate of materials from a dozen different sources; affluent, indeed, almost beyond comparison, in its multiplicity of words, but wanting in that noble simplicity and expressiveness which might have been the result of a different course of political events.

But let us not be among the croakers. Bad as the case is, it is not

entirely hopeless. The introduction of the study of the Anglo-Saxon, as a part of a course of liberal education, will help to check the Latinizing tendency of scholars and writers. There are, moreover, in various quarters, symptoms of a growing partiality for words of native stock. Besides this, the very evil complained of is not without some compensating advantages. One advantage of this facility with which we borrow foreign words, is, that we have thereby become, beyond all nations, rich in synonyms. For the same idea, in almost numberless instances, we have two, and sometimes even three terms, exactly equivalent and equally legitimate. This is a decided advantage, saving oftentimes tiresome and inelegant repetitions. The writer who has tired his readers with the term 'native language,' may take refuge, as in this article I have had frequent occasion to do, in the 'mother tongue.' The idea is kept up, but the tautology is spared. Moreover, it frequently happens in these cases, that of two words of different origin, used to express the same general idea, the one has acquired by usage a slight shade of meaning different from the other, so delicate and evanescent as scarcely to be defined, and yet perceptible to a cultivated taste, and beautiful in proportion to its delicacy. How logically the same, and yet how different to the loving heart, are the words 'maternal' and 'motherly.' It is his skill in availing himself of this peculiarity of the language, that, among other things, enables our own Washington Irving to express with such marvellous exactness the endlessly-varying shades of human thought and feeling; that enables him to pass from the grave to the gay, from the didactic to the playful, from the humorous to the sublime, with an ease that seems only equalled by the movements of the mind itself.

Far be it from us, then, to join the ranks of those who would dismiss with a rude rebuff these Latin-English intruders. They are now here. They form a large and valuable element of our language. While we protest against and resist the introduction of more, and while we make the native element of the language a subject of cultivation by studying, carefully, the original Anglo-Saxon, let us give to the Latin element such a portion of study as will enable us to understand both its meaning and the laws of its formation.

The fact that the words of Latin origin constitute one-third or more of the words in the language, is often used to prove the necessity of making this element of the language a distinct subject of study. The best preparation for such a study is a knowledge of the Latin itself. In default of that, the next best preparation is a knowledge of some of the languages that have sprung from it, *i. e.*, of the French, Spanish, or Italian. Fortunately, in this respect, nearly all educated persons have one or the other kind of preparation. Some have both. But there is something wanting besides a general knowledge of Latin; there should be specific study of that portion of the Latin which has crept into our language. These words are no longer pure Latin; in some instances the stem has been corrupted, particularly in those from the French; in all instances the Latin terminations for numbers, cases, genders, persons, and tenses, &c., have been exchanged for the corresponding Saxon terminations. Oftentimes a word has changed its meaning, as well as its form, in the transition. A proper knowledge of these peculiarities requires some distinct and special study, though it need not be very great in amount.

If the Latin element of the language calls for distinct study, because it constitutes about one-third of the language, how much stronger is the reason for studying that which constitutes the remaining two-thirds? If the one-third is already tolerably well provided for, in the fact that nearly all educated persons are acquainted with either Latin or French, how inadequate has been the provision for the two-thirds, when not one educated person out of a thousand is acquainted with the original Anglo-Saxon? If the foreign element deserves attention at our hands, how much more that which is native? If the study of the Latin and French has led educated persons to an offensive and injurious partiality for the use of words of Latin origin, when they might have had home-spun English equally good, the tendency is to be corrected, not by discarding classical studies certainly, but by engrafting upon our course of education the study of the Anglo-Saxon.

The importance of studying the Anglo-Saxon, or native element of our language, will be further apparent from a few considerations growing out of its peculiar character. This point was discussed with great force and elegance by the "Edinburgh Review" for 1839. I give the substance of the reviewer's argument, with some alterations and additions, in the following paragraphs:—

In the first place, all the grammatical inflections of the language are Anglo-Saxon. These are chiefly as follows: the possessive case, *'s;* the plurals of nouns, *s, es, en,* &c.; the comparative and superlatives of adjectives, *er* and *est,* and the kindred termination *ish;* the most common adverbial termination, *ly;* the cases and numbers of the pronouns; the second and third persons of the verb, *st, s, th,* &c.; the past tense and perfect participle, whether formed by adding *ed, d,* or *t,* as in affirm*ed,* love*d,* wep*t,* or by a change of the stem, as in s*i*ng, s*a*ng, s*u*ng. These inflections and inflectional changes form a vital and most expressive part of a language. No entire words are used anything like so much as these modifying parts of words. Though not numerous in themselves, hardly amounting to fifty altogether, they are in most constant requisition. No noun (with rare exceptions) is without its plural; no adjective without its degrees of comparison and its adverb; no verb without its tenses, persons, and numbers. The terminations necessary to express these changes of thought will occur as often as there are nouns, adjectives, and verbs in the language. If to the word 'walk' we add the termination *ed,* we give to the meaning an entirely new and additional idea, namely, that of past time. The original word expresses a certain action. The word with the suffix expresses that same action, and also the idea of its being done in past time. The suffix has a power and meaning of its own just as much as the main word has. Now, probably, nine-tenths of the words in the language are dependent upon these grammatical inflections to express the varying shades of thought or action to which each is subject; and these grammatical inflections are all pure Anglo-Saxon. This is true equally of the native words and of those derived from the Latin. To give to the verb 'occur' the idea of past time, we use not its own Latin termination, *ebat,* but the Saxon *ed.* The plural of 'liquid' is not liquid*i,* but liquid*s.* The superlative of 'pure' is not pur*issimus,* but pur*est.* And so of the rest. Perhaps it would be no exaggeration to say that one-third of the ideas contained in any given page are expressed by these grammatical inflections. The fact surely is

a strong argument for the study of the Anglo-Saxon, in which these inflections originate.

But there is in every language a class of words that perform an office very similar to that of the inflections. They serve to modify and limit the meaning of other words, and in modern languages they are to a great extent a substitute for the fuller inflections of the ancient languages. They may therefore be called grammatical words. Among them may be reckoned the following: the articles *a* and *the*; *more* and *most* used to express degrees of comparison; all the pronouns, personal, relative, and adjective, such as *I, thou, he, she, it, we, you, they, who, which, what, this, that, each, every, either, neither, any, one, none, all, such, some, both*; the most common adverbs of time and place, derived from the pronouns, such as *here, there, where, when, then, how, whither, hither, thither, whence, hence, thence*; the numeral adjectives; the auxiliaries of verbs, *be, have, shall, will, may, can, must*; and all the *prepositions* and *conjunctions*. Now these grammatical words occur in discourse almost as frequently as the inflections, and they are without exception Anglo-Saxon.

But among the ordinary words of the language, it has so happened that those most capable of rhetorical effect, and consequently most important to the orator and the poet, are derived from the Anglo-Saxon. We may take for example the names of the most striking objects and agencies in nature; as the heavenly bodies, *sun, moon, stars*; three out of the four elements, *fire, earth, water*; three out of the four seasons, *spring, summer, winter*; most of the natural divisions of time, *day, night, morning, evening, twilight, noon, midday, sunset, sunrise*; the most striking operations of nature, *thunder, lightning, hail, snow, rain, cold, frost, light, heat*; the most beautiful parts of external scenery, *hill, dale, dell, sea, land, wood, tree*. These words call up vivid ideas to the mind, and are among the most expressive that the language contains.

There is a class of words in every language that have a very strong and peculiar effect upon the mind, because of their associations. They are connected with the recollections of childhood, and bring to mind the duties and enjoyments of love, friendship, and hospitality. This important class of words is, in our language, derived almost entirely from the native element. From this source we derive the terms *father, mother, husband, wife, brother, sister, son, daughter, child, home, kindred, friend, hearth, roof, fireside*.

It is a common and sound maxim in rhetoric, that the more abstract a term, the less vivid it is; and the more special, the more vivid. Abstract and general terms for the most part arise in the prosecution of scientific and philosophical inquiries. Studies of this kind originated among the English at a time when scholars used the Latin almost exclusively. Hence, Latin words prevailed with us in the departments of logic, speculative philosophy, and science, more than in any other field of human experience. Hence, too, nearly all our abstract terms are Latin, while our more vivid special terms are Saxon. Thus, *move* and *motion* are Latin; but the words expressing the various specialities of posture and of bodily action are Saxon; as, *to sit, to stand, to lie, to run, to walk, to leap, to stagger, to slip, to slide, to strive, to glide, to yawn, to gape, to wink, to thrust, to fly, to swim, to creep, to crawl, to spring, to spurn*, &c. We receive from the Latin the general terms *emotion* and

passion; but the Saxon gives us the names of the individual mental affections included in these terms; such as *love, hope, fear, sorrow, shame,* as well as the external bodily signs of these affections, such as *tear, smile, blush, frown, to weep, to sigh, to groan. Sound* is Latin, but *to buzz, to hum, to clash, to rattle,* are Anglo-Saxon. *Colour* is Latin; but *white, black, green, red, yellow, blue, brown,* are Anglo-Saxon. *Crime* is Latin; but *murder, theft, robbery, to lie, to steal,* are Anglo-Saxon. *Member,* as applied to the body, is Latin; but *ear, eye, hand, foot, lip, mouth, teeth, hair, finger, nostril,* are Anglo-Saxon. *Animal* is Latin; but *man, cow, sheep, calf, cat, dog, horse,* are Anglo-Saxon. *Number* is Latin; but *one, two, three, four, five,* and so on, till we come to 'million,' are all Anglo-Saxon.

I repeat, therefore,—and this is the conclusion of the whole matter,—that whether we consider the character of the Saxon element as containing the most energetic and descriptive words that we possess; whether we consider the important fact that the grammar of the language, including the grammatical words, and those most vital parts, the inflectional changes, is wholly Anglo-Saxon; or, whether we consider merely the relative proportion of the native element, containing as it does nearly two-thirds of our whole stock of words—there are surely, in every view of the case, cogent reasons for giving to the study of the Anglo-Saxon that distinct and prominent position in our course of liberal education which has never yet been assigned to it.

HOW TO MAKE ORDINARY EDUCATION NATIONAL.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—Although when we look forward to what remains to do, the march of National Education seems slow; yet when we look back on what has been done, I see no reason to despair. We have, at any rate, got to a point where, in one or two respects, we begin to see our way clearly; and it is the duty of all concerned about education, to regard well the prospect of the next stage of the journey.

It appears to me that, thanks chiefly to the Committee of Council, national schools have now for the most part risen far above their primitive condition of places where the minimum of knowledge was to be doled out to the children of the very poor. While they have happily avoided the error into which British schools have fallen, of neglecting the labouring class for the shopkeepers, they are every day becoming more adequate to afford, at least, elementary education to the children of farmers, clerks, and tradespeople; and that class is daily appreciating better the advantages offered.

This seems to me a great good, both because this mixture of classes is beneficial in every way, and also because private commercial schools, which, as a class, are very inefficient (though with exceptions), will be gradually eliminated from the problem of education.

But in order to extend the efficiency of our schools in such a way as to make them the seminaries of a really national primary education, one or two subjects will require to be introduced, or to be attended to with more care than they receive at present.

In the first place there is Latin. I am convinced that the confidence which the certificated masters are every year so justly earning, is so great, that in a very few years children of a very far higher class than I have mentioned would be sent for elementary instruction to these schools, if only this one subject were introduced. That such a system is not without precedent, Scotland proves. But there exists an almost universal belief in this country, that Latin is the *differentia* of such an education as a man who has fought his way up in the world, and entertains that noble wish to see his children better off than he is, would wish to give his son. I confess, that in spite of the high authority of Mr. Congreve (preface to his edition of "Aristotle's Politics"), I entirely sympathize with this feeling. I have neither space nor time to enter into this vexed question of the utility or inutility of classics, but I know that the middle classes of England hold strongly by the old tongue. As far as science, pure or mixed, is concerned, a certificated master can give better instruction than the teachers of any schools to which children of any class in this country are sent under the age of thirteen. Add to this Latin, and I see no reason to doubt, that in twenty years' time all children under the age of ten would receive their elementary education at primary schools under government inspection. Gradually to introduce Latin would be easy; at present it is an optional subject for the certificate examination of the second and third years. Make it one of the subjects for first-class Queen's scholarships (*not* instead of Euclid, algebra, or mensuration, but in addition to them); put it on the same footing in the annual pupil-teacher examinations as music and drawing, *i. e.*, let it for the present not be compulsory, but let it be encouraged wherever possible; and for the present allow instruction to be given in it by the clerical (or any other) manager, where the master does not know it, and the thing is done. I am so convinced that Latin must soon be made an important element in Government examinations, that I have myself begun to teach it to the pupil-teachers in the school of which I am clerical manager, certain that I am only a little before the age.

On the second point I will be brief. If certificated masters are to do the work which inevitably lies before them, besides the very excellent instruction in mathematics and physics which is afforded them, and which I would not curtail in the least, they should have a much deeper training in moral science, and in studies which conduce to profound and sober reflection on the mind of man and its laws, than they have at present. I would not introduce moral science into the pupil-teacher course, for boys always get it up as "cram;" but instead of leaving it as an optional subject for the third year certificate examination, it should be a compulsory subject for every certificate examination. To give time for this wider range of subjects, Queen's scholarships might be made renewable for the third year.—Your obedient Servant, R. TEMPLE.

The Lache, Chester, February 6th, 1856.

[This letter well expresses the exact reverse of what we hold on the subject. National schools are designed to grapple with the crass ignorance of the lower orders of the people. Classically-trained masters rarely cope with, or even probe the mental barrenness of, such children, and almost always confine their best exertions to the few who can do credit to them. We want a division of labour in education rigidly preserved; Mr. Temple's wish is to efface it altogether.—Ed. E. J. E.]

LITERARY STYLE AND COMPOSITION.

IN a preceding paper on this subject, we devoted our attention, in a great degree, to the different styles of writing. We endeavoured to explain in what their several excellences consisted, and into what faults they were most likely to degenerate. We sought also to warn the writers on theology, history, and science, of the dangers which peculiarly beset the paths they were treading,—or rather, we sought so far to gain their attention, as to induce them to watch carefully over themselves,—to look into their own mind dispassionately,—to note its workings,—and then judge in what point they are most likely to err.

But this is only one branch of the subject which we proposed to discuss. If we would write well, and be of any service to our fellow-creatures in so doing, it is not sufficient that we should study to express ourselves forcibly, should avoid errors of style, and endeavour to convey our ideas with clearness and accuracy; it is still more important that those ideas should be worth conveying to the minds of others. The author of a book of which it can only be said that it will do no harm, has wasted his time and energies; his labour has been without fruit, and the sooner his work sinks to oblivion the better.

But this is not the case with our better class of writers. Their object is to communicate knowledge, and to afford instruction to those around them. To such writers, or rather to those who aspire hereafter to become such, were the observations contained in our previous paper particularly directed. To them we would again address ourselves; and we would warn them to be as careful in the choice of subjects on which to treat, as in their style and manner of treating them. Let them ask themselves a few simple questions, and answer them candidly, before they commence their labours.

First. Is the subject on which I propose to write worthy of being brought before the public? Will any good accrue from my so doing?

Secondly. If the subject is good, am I capable of elucidating it in any degree? Have I any new information to bring forward, any old errors to combat, any well-ascertained facts or disputed theories to put in a clearer and simpler form than has been hitherto attempted? Or, if my object in writing is none of these, can I aid the moral effect of an amount of knowledge already possessed in the world, by my tone and manner of expression?

If these questions can be answered satisfactorily, let the author delay no longer to take the pen into his hand. His motives are honourable and worthy, and should his labours fail to meet with the success such motives deserve, they will at least bear fruit in his own mind, that will be improved by the thought and study he has undergone; and though his labour may be lost, his time will not have been wasted.

There are many subjects of such a deeply interesting character, that the public seize with avidity any works relating to them. It is no uncommon thing to hear it said, "Such and such a book is on a most interesting subject, but written in a bad spirit." And yet such works, though confessedly jarring against our better feelings, are still read, on account of the information they contain; and often the subtle poison that is concealed within, leaves its own dark stain on the mind of the incautious. It matters not that the words are well chosen, the similes

natural and true, the language flowing and elegant: such beauties do but add to its danger, and the author is responsible for all the harm it may occasion. He has done evil, not good, in his generation, and has incurred the penalty for misusing the talent conferred upon him.

We are not here advocating the practice of some writers, who, from an earnest desire to inspire their readers with just and religious feelings, wind up every chapter with moral reflections, sometimes appropriate, and sometimes as it were dragged in by force, and then rest satisfied that they have accomplished everything that can be expected of them. But this constant repetition of reflections makes them lose much of their force. We are reminded of the moral always following the fable, yet we think little of applying it to ourselves. We want something that makes its way unconsciously to our hearts, and *there* gives birth to such reflections. This will be far better done by attending to the whole spirit and tone of our language, than by any regular succession of set phrases. That it is more difficult to do this, we grant at once; but that is only an additional reason for calling forth our best energies in the attempt. In this way, reflections seem to arise spontaneously from the subject on which we are treating; are unlaboured, and are therefore received without hesitation by the reader.

M. Antonin Roche's work contains so valuable a passage on this subject, that we cannot forbear giving a translation of it at full length:—

"Reflections, to make a proper impression, should be short, and given as certainties, instead of being announced with emphasis; above all, they should spring from the subject, and mix with it. It is still better to describe an event in such a manner that the reader may find the reflections for himself: we thus make him reason without addressing any reasoning to him. It is a certain means of arousing his attention and pleasing him; he will be gratified with you for having instilled into his mind that which he himself finds there. To conclude, there is a pretence about reflections, they have a sarcastic and pedantic air, which is disagreeable to the greater number of readers. Men do not like to be schooled, and have morality preached to them. We should know how to inspire a feeling of morality without moralizing."

While, however, we are thus advocating a constant attention to the spirit and probable effect of our words, we must not forget to notice that there are many faults which detract from, and occasionally quite destroy, the effect we are desirous of producing. The greatest of these, and perhaps the one in which we are most inclined to indulge, is irritation of manner towards those who differ from us.

In most subjects, whether theological, historical, or scientific, conflicting opinions are held on certain points. That which one man supports as a mighty truth, another denounces as a dangerous falsehood. Let each, in such a case, hold to his own opinion so long as he can do so conscientiously. Let him bring forward every argument he can to convince his adversary; but let it all be done with liberality of feeling. Let reasoning never give place to vituperation, or calmness to irritability.

When we perceive a bitter feeling rising in our author's mind, his arguments at once lose half their force, because we no longer trust in his justice, but fear that prejudice will cast its baneful colouring over his thoughts and words. A painful example of this kind occurs in a work by Sir D. Brewster, entitled, "More Worlds than One,"—an answer to

"Plurality of Worlds," by Professor Whewell. The subject of the habitability or non-habitability of other worlds beyond our earth, is the point of controversy; and it is one that has latterly excited much attention amongst scientific men. We do not here pretend to give an opinion on the merits of the case; but we regret that so able and talented an author should have injured his cause, by allowing his feelings to get the better of his judgment. Phillips, in a work* also designed as an answer to Whewell's theory, makes the following just remarks on this subject:—

"Scientific theories should always be discussed with the full understanding that all human beings are fallible, and that, though we may approximate to the truth, yet an imperfect approximation is all which we can here attempt.

"Let us all consider our own imperfect reason, and keep ever in mind the memorable words of Him who spake as never man spake,—'Judge not, that ye be not judged.'"

This is not the only kind of irritation, however, into which authors sometimes fall; there is another species of this error, which is almost more unpleasing to the general reader than the one we have noticed above. It is, irritation against the public generally, or against a certain class of the public, for either a real or supposed want of appreciation of the author himself. Now there is something in this, which so sinks the writer in our estimation, and offends so much against good taste, that it cannot be too carefully avoided. An example of this failing we meet with in the conclusion of an admirable treatise on Thought and Language, by B. H. Smart. The passage is as follows:—

"How does such a one as he,"—the author is speaking of himself,—"of small name even now, of no name before he took up this subject, dare enter a field appropriated by men who have gained the ear of the reading public, and are interested in keeping it? Is it likely they would have drawn attention by any notice of theirs, to a writer who, while he had youth, and spirits, and time to accomplish it, might have produced a work important enough to contend with—nay, to have overturned—the philosophers, the logics, and the grammars of the day? Instead of assistance in this way, while the generality of periodicals have been content to avoid all aid by keeping a cautious silence and ignoring the author, one at least among the number has stood between him and the public by designed and decided misrepresentation."

We will notice but one other fault in which controversial writers are apt to indulge; namely, the use of ridicule and sarcasm instead of argument. Such tools are undoubtedly very effective, and a man may often crush his adversary by the galling effects of ridicule, when he could not reach him with sober reason. This would be very desirable, if our object were simply warfare; but we have a far higher aim, a far loftier purpose to accomplish; which is, the elucidation of truth; and this can only be done by answering reason with reason, argument with argument. It is a harder task to do this, but it is far more satisfactory both to the reader and to ourselves, and demands far greater intellectual powers; for, while a weak man may ridicule one of profound learning and abilities, a clever man alone can answer him. Besides this, it saves

* "Worlds beyond the Earth."

much bitterness and ill feeling on both sides, and prevents our forgetting, in the midst of intellectual controversy, the holy precept that bids us "honour all men," or the proverb that "we should do unto others as we would they should do unto us."

There is another class of writers to whom we have not yet addressed ourselves, and who, though not exposed to all the dangers we have hitherto noticed, are yet menaced by perils of their own, as difficult to avoid and as dangerous to the public. We allude to the large body of writers of fiction.

Many will say this is not a class worthy of being named at the same moment with those of such a far higher stamp as the writers to whom we have previously addressed ourselves. We cannot, however, agree with this. Such authors *do* possess an enormous amount of influence, and therefore, though their works are of a lighter character, we would fain inquire why one class of the public set their faces against them altogether; why another class follow them with such eager avidity, that their minds become unfitted for any more serious occupation. What is there in the character of fictitious writings which produces these two opposite results?

Those who object to them altogether, do so for various reasons. There is so much of morbid and factitious feeling frequently existing in these works; they so often tend to excite the passions, and make that appear right, or at least excusable, which, in our sober moments, we know to be wrong; that many look upon all writings of this kind as dangerous, and therefore to be carefully avoided. On the other side, those whose feelings are ill-regulated, and whose judgment is not matured, seize upon these works in consequence of their very defects. Their minds, already morbid and vitiated, become more and more weakened by such a style of reading, and they cease to take any pleasure, or derive any profit, from the study of the higher class of books which appeal to the reason. Such works appear to them dull and uninteresting, because they do not possess the excitement of fictitious narrative.

But such faults do not necessarily belong to the style just described, and may be avoided. The fact that they possess so much power of evil, warrants us in concluding that they *may* be made equally conducive of good, if differently handled. Let virtue be made to appear in attractive colours; let us inculcate good, noble, and religious feelings and principles, and, while we show the revolting character of vice, let us avoid dwelling on and gloating over its description. No good can be accomplished by so doing, though much evil may be effected. It is easier to rouse an evil passion than to quell it again. We do not here advocate that the better characters of our tale should be made perfect, superior to evil in thought and action;—this would be unnatural; and one great aim of the novelist should be, always to adhere to truth and probability. He should never overstep, in his compositions, the rule that the Grecian sculptor laid down for himself in the cultivation of his art. When he wished to represent intellectual superiority, and a freedom from earthly ties, he did not, as the monumental sculptors of the present day, delineate a full-faced cherub-head, flanked only with a pair of wings, such as meet our eyes in every country churchyard. Similar violations of the laws of probability never entered into his head. He still preserved the human form, only venturing carefully to enlarge the forehead, and bring

prominently forward the intellectual organs, while he diminished the lower portion of the face about the mouth and chin; that being the part which gives the animal character to the countenance. Not doing this, however, to excess, so as to produce the idea of deformity; but simply so to give the intellectual portion an ascendancy, that it may convey to our minds an idea of mental and moral superiority.

No greater exaggeration than this should the writer of fiction ever allow himself, or he will fail of producing the effect he intends. An example will illustrate our meaning.

In the works of the celebrated American novelist Cooper we meet repeatedly with a certain character, under different names, such as the "Pathfinder," the "Deerslayer," &c. We always welcome him with pleasure, and while we watch the gradual unfolding of his beautiful and deeply religious character, we learn to admire and love the excellences there portrayed; and possibly a spark of his goodness and purity may remain with ourselves when we close the book. This could not have been the case if the character had been unnatural or impossible; but the living prototype from whom it was drawn, actually existed till within a few years ago, and dwelt, as the Pathfinder is represented to have done, in the wild forests and prairie-lands of America. And now, having said so much on the faults into which authors sometimes fall, let us address one word to general readers.

In judging of a work, do not be carried away by mere beauty of style, or elegance of expression: these things are but ornaments. Divest the thoughts and arguments you meet with of such adventitious aid, and examine them in themselves. If they are suitable and true, receive them. If, when re-expressed in a short and simple manner, they lose the strength you had previously supposed them to possess, look upon them with distrust;—it was their external covering made them acceptable in your eyes; and all is not gold that glitters. If, when unadorned, and presented to your judgment, they convey one sentiment which will degrade or debase your moral nature, close the book, however fascinating its interest, and remember, that to read its pages, is wilfully to imbibe a poison which is destroying you. C.

WRITTEN EXAMINATIONS.—Frequent written reviews are among the most successful means that teachers can employ for securing thoroughness and accuracy of scholarship. Several topics are written distinctly on the black-board, and the pupils are required to expand them as fully and accurately as possible. Each pupil is seated by himself, and furnished with pen and paper; but receives no assistance, direct or indirect, from either teacher or text-book. This mode of examining a class accomplishes at least three important objects at the same time. It affords a thorough test of the pupil's knowledge of the subject; it is one of the best methods of cultivating freedom and accuracy in the use of language; and it furnishes a valuable discipline to the pupil's mind, by throwing him entirely on his own resources. The task of examining so many separate written exercises, and of estimating their value, increases the labour of the teacher; but the gain to the pupil is more than an equivalent for the extra service required.—*Massachusetts Teacher.*—An able Magazine.

DISCIPLINA REDIVIVA—No. 10.

MODERN LANGUAGES AND TRAVEL.

WE have associated these two topics, because we think that they reciprocate an interest which neither of them apart from the other possesses. We shall speak of them first in this connection, and afterwards of each separately.

The more intimate a man's knowledge of languages, dead or living, the more advantage he will derive from travel; the more he travels, the greater the demand for such an acquaintance with the tongues of other people, past or present, whose sepulchred or still breathing energies and genius he goes to contemplate. The visitor in Italy or Greece will sorely repent the loss of his Latin and Greek, and the lack of historical knowledge. Such resources we have urged our young student to keep a jealous hold upon, and to increase by systematic study.

But not for the present to say more of Greek or Latin, how does our reader stand with respect to modern languages—the vehicle and expression of what will after all be most interesting to the student of men and manners? Are we in the habit of looking with living interest upon what, to be a possession at all, must be a living and an active possession? When a boy leaves school, does he commonly carry with him, we will not say such an acquaintance with modern languages, but such a feeling for them as is sufficient to induce him to pursue their study with interest and alacrity? Nay, does he not often take away with him the notion of an antagonism between dead and living—between Greek and German—between Latin and French; and are not both parents and tutors too often to blame for his subsidence between the chairs of ancient and modern learning? We say, cultivate both.* Let a definite and sufficiently frequent opportunity for the study of modern languages be intermingled with the sterner study of the classics; let the one relieve and illustrate the other; give the lad the practical work-day advantage of the one, whilst he carries with him the refinement, the indescribable education of the other; and when he leaves school, he will not be induced thoughtlessly to abandon either. He may be taught, that to make his way to Rome, and save his money by the road (if no more), he must speak French and Italian fairly; to understand *ancient* Rome, when he gets there, he must have a familiarity with Livy, Horace, and Juvenal.

In these days of rapid transit, is it not allowable to hold forth this connection between languages and travel as a powerful inducement to study, and as giving new life to the endeavours of the schoolboy just let loose from school? How would an anticipated tour up the Mediterranean quicken and concentrate the energies of the lad who had just learnt to

---

* "It is to your shame (I speak to you all, you young gentlemen of *England*), that one maid should go beyond you all in excellency of learning and knowledge of divers tongues. Point forth six of the best given gentlemen of this Court, and all they together show not so much good will, spend not so much time, bestow not so many hours daily, orderly and constantly, for the increase of learning and knowledge, as doth the Queen's Majesty herself. Yea, I believe, that beside her perfect readiness in Latin, Italian, French, and Spanish, she readeth here now at Windsor more Greek every day than one prebendary of this Church doth read Latin in a whole week."—*Ascham's Scholemaster*, pp. 67, 68.

appreciate Horace, or to read with interest the glowing descriptions of Madame de Staël's "Corinne!" Would not that one word, *travel*, to the thoughtful mind, act like a charm upon the whole circle of studies, becoming an education of the taste and the imagination (of this, more in a future paper), and be the means of lifting the whole man in the scale of earnestness and intelligence?

The great difficulty in all education is to give to study a definite aim, —something at once to enliven and to draw the student forward on his course. It is the work of the schoolmaster to supply this aim by an adroit and various suggestion, suited to the varying tastes and capacities and prospects of his pupils. In self-education, and that phase of it which consists in the carrying on of the tutor's responsible labours suggested in this scheme, this conscious aim in study will commonly precede a studious habit, and contribute to its formation.

In this paper, we are seeking more particularly for inducements to the study of modern languages, as a most desirable pursuit on the ground of self-interest, and also as means to high intellectual enjoyment. We think that we find such an inducement in *travel*. At the same time, we are persuaded that young men do not, as a matter of course, associate the two together, or seek to derive from the one the peculiar advantages tendered by the other. How seldom do we hear of a youth setting to work to qualify himself for an intelligent intercourse with the foreigners whom he may expect to be thrown with in the course of (what is to most men nowadays) a probable opportunity of travel in other countries!* Nay, is it not notorious, that we English are neglectful of the most obvious precautions and axioms of the science of travel;† that we leave home without a thought as to that currency of thought and intelligence from which a dogged ignorance of other tongues must cut us off, content with having established credit with a banker in Paris, or Rome, or Naples, for our expenses by the road? Is it not also true, that late events have broken in upon our national unwillingness to communicate with foreigners; that the waters which separate us from the Gallia of Cæsar, are no longer an *oceanus dissociabilis;* and that, as the true-hearted allies of a generous neighbour, we are responsible for the maintenance of these happy relations, which have been suffered to grow up between us? Is it not true, that a mutual understanding between two nations is materially aided, and must eventually be sustained, by that kind of consideration which shows itself in the acquirement of the strange language by the members of either nation? Is it not true, that the Englishman in Paris contracts a far greater debt, in the kindness and affability of the natives, than the Frenchman in London? And is it not further true, that *we* have, as a nation (in virtue of our mixed race, and our composite language), a larger capacity for the attainment of French, and German, and Italian, than those who speak these languages

---

* He that travelleth into a country, before he hath some entrance into the language, goeth to school, and not to travel. . . . If you will have a young man to put his travel into a little room, and in a short time to gather much, this you must do: first . . . he must have some entrance into the language before he goeth."—*Bacon.*

† It is also an *art*. See Galton's "Art of Travel," for a most useful and interesting discussion of the manifold expedients which a wide-spread experience has furnished to the hand of an able registrar.

have in their turn for English? Our insular position has doubtless much to do with the fact that, as a nation, we know one language only, whereas the continental nations know, each of them, at least two. There is, also, beyond this, ground for some little of the national pride which our self-containedness, so to speak, has engendered; but there is also reason, with respect to this very point, for serious question as to the future. Europe is no longer what it was. England cannot afford to hold aloof, or suffer herself to become estranged in any one particular, in which she might rule a different order of things. Whilst we bear in mind good Roger Ascham's warnings against the dangers of foreign travel,* we *profess* to be more enlightened, to have larger hearts and

---

* "Sir Richard Sackville, that worthy gentleman of worthy memory, as I said in the beginning, in the Queen's Privy Chamber at Windsor, after he had talked with me for the right choice of good wit in a child for learning; and of the true difference betwixt quick and hard wits; of alluring young children by gentleness to love learning, and of the special care that was to be had to keep young men from licentious living; he was most earnest with me to have me say my mind also, what I thought concerning the fancy that many young gentlemen of *England* have to travel abroad, and namely, to live a long life in Italy. His request, both for his authority and good will toward me, was a sufficient commandment unto me, to satisfy his pleasure with uttering plainly my opinion in that matter. 'Sir,' quoth I, 'I take going thither, and living there, for a young gentleman that doth not go under the keep and guard of such a man, as both by wisdom can, and authority dare rule him, to be marvellous dangerous.' . . . . . 'Yet if a gentleman needs travel in *Italy*, he shall do well to look to the life of the wisest traveller that ever travelled thither, set out by the wisest writer that ever spake with tongue, God's doctrine only excepted; and that is *Ulysses* in *Homer*. . . . Yea, even those that be learned and witty travellers, when they be disposed to praise travelling, as a great commendation, and the best Scripture they have for it, they gladly recite the third verse of *Homer*, in his first book of *Odyssea*, containing a great praise of Ulysses, for the wit he gathered and wisdom he used in travelling:—

. . . 'Πολλῶν δ' ἀνθρώπων ἴδεν ἄστεα, καὶ νόον ἔγνω.'

And yet is not *Ulysses* commended so much, nor so oft in Homer, because he was πολύτροπος; this is, skilful in many men's manners and fashions; as because he was πολύμητις; that is, wise in all purposes and wary in all places. Which wisdom and wariness will not serve never a traveller, except *Pallas* be always at his elbow; that is, God's special grace from Heaven to keep him in God's fear in all his doings, in all his journey."—*Ascham's Scholemaster*, pp. 73—77.

. . ."I hear say some young gentlemen of ours do count it their shame to be counted learned; and perchance they count it their shame to be counted honest also; for I hear say, they meddle as little with the one as with the other. A marvellous case, that gentlemen should be so ashamed of good learning, and never a whit ashamed of ill manners! Such do say for them, that the gentlemen of France do so; which is a lie, as God will have it. Langæus and Bellæus, that be dead, and the noble Vidam of Chartres, that is alive, and infinite more in *France* which I hear tell of, prove this to be most false. And though some in *France*, which will needs be gentlemen, whether men will or no, and have no more gentleship in their hat than in their head, be at deadly feud with both learning and honesty, yet I believe, if that noble prince, King Francis the First, were alive, they should have neither place in his Court nor pension in his wars if he had knowledge of them. This opinion is not French, but plain *Turkish*, from whence some French fetch more faults than this; which I pray God keep out of England."—*Ibid.*, pp. 57, 58.

Roger Ascham complains bitterly of the licentiousness of the "Englishmen Italianated" of his own day, and of the many "fond books of late translated out of Italian into English, sold in every shop in London; commended by honest titles, the sooner to corrupt honest manners."—*Ibid.*, pp. 84, 85; also at p. 95.

. . ."Not because I do contemn either the knowledge of strange and divers

larger political sympathies than were in fashion in the days of Elizabeth "of glorious memory." We certainly have duties and interests, as a nation, which have not hitherto been generally recognized. Perhaps these responsibilities never before existed in the full force in which they now present themselves. However this may be, narrowness of views and narrowness of education can never be seasonable; they are peculiarly unseasonable at the present time, and will grow in untimeliness as future changes develope themselves throughout the political world. In order that we may be qualified to take our part in these changes, or even to judge of them fairly, we must take our part in the education peculiar to this new order of things.

Doubtless, then, we must give due encouragement to the cultivation of the languages of that modern Europe (at least) in whose well-being, under the strange revolutionary influences at work upon her, we cannot but take a lively interest. The only question indeed is, whether, in the heat of pressing claims upon our interest, we can afford time for the old learning, and more particularly for the painful pursuit of the languages in which it has come down to us—whether we ought not, in these practical times (as they are called), to divide our school-hours between "useful knowledge" and the instrumental, living, breathing languages (now actively beneficial, now actively mischievous) of our own busy time. On this question we have before said something. We again contend, that there is ample time for both; that we can no more do without our classical discipline than could our forefathers; that, if men have made advance (how great!) in arts and sciences younger than Greek and Latin, they are at work upon investigations in which Greek and Latin will alone enable them to read off the secrets both of art and science, those old-world experiences, without which the most elaborate scientific induction would be imperfect; that there is a school of taste, where the pupils can find objects worthy of their study only amongst marbles and bronzes, mellowed with the glory of more than two thousand southern summers; that there is a school of wisdom, political and moral, as well as intellectual, where sages of Greece are the teachers, and Christian men may be content to interpret. These thoughts we would urge upon our young student, as an antidote to that self-sufficiency of modern systems, in which we may detect their greatest strength and their greatest weakness.

But if our reader be a well-informed youth and a fair scholar, he will know that a knowledge of Latin, at least, is really necessary to the thorough understanding of French, and Spanish, and Italian.* He will

---

tongues, and namely, the Italian tongue (which, next the Greek and Latin tongue, I like and love above all other); or else because I do despise the learning that is gotten, or the experience that is gathered in strange countries; or for any private malice, that I bear to Italy; which country, and in it, namely, Rome, I have always specially honoured: because time was, when Italy and Rome have been to the great good of us that now live. . . . . But now that time is gone."—*Ibid.*, pp. 72, 73.

† "Should it be the student's aim to attain the most useful and polished languages of Europe, viz., the French, Spanish, Italian, and Portuguese, he will indeed test the *utility* of his Latin acquirements, and find the old Roman language the master-key to the mint of their literature. A short special illustration will more clearly elucidate my argument than general assertion. I beg, therefore, permission to take a passage, at random, from *Gil Blas*, and to place its Latin roots in juxta-position; by which

have learned that there is an easy transition from the language of ancient Rome to that of modern Italy, and much instructiou to be derived from the mere study of the changes which have passed upon it, to make it, what we find it beneath the pen of Dante or Tasso, or the author of

---

arrangement . . . . the close affinity of the languages will more forcibly arrest your attention :—

Meus magister appellavit unum medicum, qui mihi dixit bonus
Mon maître appella un médecin, qui me dit bonnement, après

me habere bene observatum, quod mea malacia erat plus seria quam homines
m'avoir bien observé, que ma maladie était plus sérieuse qu'on

ne pensabant, et quod secundum tota illa apparentia longum tempus
ne pensait, et que selon toutes les apparences je garderais long temps

illam cameram. Ille doctus, impatiens de se reddere ad suam cathedram, ne
la chambre. Le docteur, impatient de se rendre à sa cathedrale ne

judicavit punctum ad propositum de retardare suum partum. Ille amabat melius
jugea point à-propos de retarder son départ. Il aima mieux

prendere unum alterum pro illi servire. Ille se continuit de m'*απαν*donare
prendre un autre garçon pour le servir. Il se contenta de m'abandonner

ad sinum de una ad qualem ille lassavit unam summam de argento, pro
aux soins d'une garde, à laquelle il laissa une somme d'argent, pour

me in terram si morerer, aut pro recumpensare mea servitea si revenirem de
m'enterrer si je mourrais, ou pour récompenser mes services si je revenais de

mea malacia.
ma maladie.

So much for the affinity between the Latin and French. Allow me next to arrange similarly a quotation from Don Eugenio de Ochoa's compilation, called *Tesora del Teatro Español* :—

Paucæ personæ pro pauco quod se habent dedicatos ad cultum de illæ bellæ
Pocas personas por poco que se hayan dedicado ad cultivo de las bellas

literæ, ignorant istam veritatem trivialem et tantas vices repetitam, quod illud
letras, ignoran esta verdad trivial y tantas veces repetida, que el

theatrum Hispaniæ est a casu illud magis quod possedit non aliqua una
teatro Español es a caso el mas rico que posee ninguna

natio. Porro theatrum Hispaniæ tam universè decantatum generaliter
nacion. Pero ese teatro Español tan universalmente decantado generalmente

cognitum. Aut pro melius dicere admiratio traditionalis ad illa antiqua
conocido. O por mejor decer esa admiracion tradicional a los antiguos

ingenia dramatica Hispaniæ de cognitione et studio de sua opera aut
ingenios dramaticos Espagñoles del conociemento y estudio de sus obras o

debemus considerare quomodo una de quales *ἰιδεα* vulgaria moneta currens in
debemos considerarla como una de aquellas ideas vulgares, moneda corriente en

totus illos tempus et in totus pagus, quæ a fortis de repetitæ se
todos los tempos y en todos los paises, que a fuerza de oirlos repetidas se

admittunt sine discussione et se perpetuant quomodo veritates inconcussæ.
admiten sin discusion y se perpetuan como verdades inconcusas.

"A similar comparison of the Portuguese with the Latin is unnecessary, as the former is but a dialect of the Spanish, mixed, perhaps, with fewer Moorish words."—*Utility of the Greek and Latin Classics, by C. J. Fenner, S.H. W.* (*ol. St. John's Coll., Cambridge*), *privately printed* 1841. We omit a similar verbatim comparison of an Italian passage with the Latin, with which Mr. Fenner concludes his argument, "that the Latin is the master-key to the garden of European learning." We have likewise omitted some notes upon several of the Latin roots cited above. There is a polyglott edition of Fenelon's Telemaque to be had in six volumes.

"I Promessi Sposi." Mr. Murray's handbooks of "Rome" and of "Italy" witness sufficiently to the relation between the old and the new learning. An intelligent and well-read man, though not a classical scholar, may still be possessed of sufficient historical knowledge to enable him to appreciate much that he will meet with in a tour in Italy; but the peculiar charm which such opportunities yield to the lover of Horace and Livy is a delight denied to all else. For these, the student will take care to fit himself with no stinted measure of preparation.

Travel amid regions of classical association doubtless imposes the yoke of connection between the literature of that period, which we have before shown (vol. ix. 368) to be essentially and plainly marked as *ancient*, and that which, under the title of *modern*, comprises events and vicissitudes in human affairs of no less wonderful significance in the history of the world. Rome may be looked upon, we believe, as an uncomfortable and decidedly dirty place, where human nature, as it prevails amongst ourselves, is subject to many petty annoyances, from which we, in virtue, perhaps, of our fogs, are exempt; or it may be regarded as the city where the iron heel of conquest has left its deepest prints, "which, as it was once the Empress of the world in a succession of many ages, so hath it at present more curious things to entertain the attention of a traveller than any other place in Europe."*

Why are Mr. Albert Smith's sketches of the travelled Englishman so taking? Is it not because they are in reality notes from the life, and do fairly represent the general ἦθος of a certain class of our countrymen abroad? And does not our English impracticableness under such circumstances arise mainly from our ignorance of the language, which can alone confer upon the traveller freedom of demeanour before strangers? Is not the refuge from this a certain aggravation of our national reserve, which is alike irritating to foreigners and unprofitable to ourselves, inasmuch as it shuts us out from the benefit of intercourse with the intelligent of other nations, and deprives us of an opportunity of gaining information and experience, which occurs nowhere else but in travel?†

---

* Burnet's Letters from Rome.

† "Let him sequester himself from the company of his countrymen, and diet in such places where there is good company of the nation where he travelleth; let him, upon his removes from one place to another, procure recommendation to some person of quality residing in the place whither he removeth, that he may use the favour in those things he desireth to see and know; thus he may abridge his travel with much profit. As for the acquaintance which is to be sought in travel, that which is most of all profitable is acquaintance with the secretaries and employed men of ambassadors; for so, in travelling in one country, he shall suck the experience of many; let him also see and visit eminent persons in all kinds, which are of great name abroad, that he may be able to tell how the life agreeth with the fame."—*Bacon's Essay of "Travel."*

If a man would learn what to "see and *observe*" in foreign countries, the same essay will furnish him with a list of characteristic national features, from the pen of one who had indeed learned how to use his eyes.

"Another of the great advantages of travel lies in what you learn from your companions; not merely from those you set out with, or so much from them, as from those whom you are thrown together with on the journey. I reckon this advantage to be so great, that I should be inclined to say, that you often get more from your companions in travel than from all you come to see. . . . The change of language is alone a great delight; you pass along, living only with gentlemen and scholars, for you rarely detect what is vulgar or inept in the talk around you."—*Companions of my Solitude*, Chap. xi.

Signally here does the old proverb hold, that "time and chance happen to every man."

But next as to the mode in which modern languages are to be studied —we all know that there is good ground for the complaint of teachers and professors that they cannot secure either the time or the attention necessary to their pupils' advancement in these παρεργα of a classical education. We have said that we think this ought not to be. To the student himself we say, apply to your French and German and Italian the same careful system of study that you have found successful in Latin and Greek, and which able tutors have enabled you to carry out. Secure still the assistance of a master, but also make out your own plan of severe methodical study. Procure French and German and Italian translations of Latin and Greek authors,† and so render yourself double service. It will be easier to carry out an analysis of modern words and phrases and constructions by having the analogous sifting of a familiar school-text constantly suggested for your guidance. We conceive that such a plan would be found interesting and full of instruction, as a mental exercise, beyond its intrinsic value. One language leads on to another. Familiarity with the usages of one or two languages implies a growing power over language in general, and this would stand a man in good stead under many of the contingencies incident to the condition of a young and active candidate for advancement. We would have those who look to the chance of government appointments weigh our advice. Young men in commercial life might equally profit by the suggestion.

One of the great lessons which the traveller has to learn is what *not* to see—how much he may fairly leave unseen and be none the worse for the omission. This is no inconsiderable element in what has been called "the divine art of seeing." This lesson may be learnt in a great measure from books and portfolios and conversation with the well-in-

---

* *E. gr.* Annibal Caros "L. Eneide Di Virgilio:" 1603.

"L' armi canto, e 'l valor del grand' Heroe,
Che pria de Troia per destino à' liti
D' Italia, et di Lavinio errando venne.
Et quanto errò, quanto sofferse, in quanti
Et di terra, et di mar perigli incorse:
Come il trahea l' insuperabil forza
Del cielo, et di Giunon l' ira tenace.
Et con che dura, et sanguinosa guerra
Fondò la sua Cittade, et gli suo i Dei
Ripose in Latio: Onde cotanto crebbe
Il nome de' Latini, il regno d' Alba,
DANTE.—Et le mura, et l' Imperio alto di Roma."

We need scarcely add *book* and *verse* to inform the reader, even though not an Italian scholar, where he may find the original of this translation.

We may venture to suggest to the enterprising publishers of the new series of Foreign Classics, Messrs. Bell & Dalby, the reprint of one or two really good French and Italian translations (with notes) of Latin authors. The association of Mr. Long's name with that of M. Delille (in the preface to the first volume of this series) is a fact which (to father the thought upon the wish) imparts to our notion something more than a merely imaginative character. We should be happy to forward the book before us (Annibal Caros's) for the inspection of the publishers. A pencil-note on the fly-leaf states, on the authority of Baretti (note on Dryden, Pros. v. 3, p. 33), that it is "the best edition;" also that "Han. Caros in the Italian is the nearest, the most poetical, and the most sonorous of any translation of the Æneid." This is quoted as Dryden's opinion.

formed at home; and no one, with limited time for travel, should neglect this economy of foresight in relation to the multitude of objects which new scenes of interest will present.

Besides this view of the matter, there is a charm and a measure of instruction to be derived from an *intelligent* survey of works of art (of historical interest and antiquity, at least,) which is denied to the uninformed taste, however capable it may be of receiving true impressions on its first introduction to such previously unconsidered objects. We speak only, it is to be observed, of works of art, and the like; this may not hold, in the same degree, of scenes of natural grandeur and beauty. The analogy conveyed in our appreciation, by turn, of music which we know, and such as we hear for the first time, will illustrate what is meant. In the latter case, we are seldom fully alive to the character of a composition, which commends itself afterwards, perhaps, with singular force, to the *cultivated* understanding and judgment.

The correcting of previous impressions will, in itself, become a source of much interest to the lettered tourist. Such a previous knowledge of what he has to expect, coming into conjunction with actual observation, will furnish him with the power of realizing more fully, and recording in his mind truer and more definite images of what he sees. It will leave him in possession of that sort of impression which the stereoscope conveys to the retina of the eye. Whenever there is the opportunity of comparison with previous knowledge or calculation, there will be a logical and critical condition of the mind supervening. This instinct it is in the power of every observer of ascertained and registered objects of interest to acquire: besides, it saves money.

There are many objects in travel which might engage the attention of scholars—such, for example, as the verifying of historical descriptions of localities, and the general features of countries, by comparison of such accounts with the places and the countries themselves.* We have before referred to Cæsar as affording scope for this. Horace forms a text book which might, with least labour, and with an interest best suited, perhaps, to the tastes and opportunities of most *young* scholars at least, be illustrated. Notes (on the margin) of statues, gems, medallions, monuments, temples, and the like, would be an invaluable aid to the memory of the traveller, and furnish him with the means of afterwards referring to good engravings, photographs, and outlines, such as now abound.† He might obtain drawings of them, and so make up his own copy of a favourite poet, and the more readily if he be himself a good draughtsman. The writer hopes some day to do this,—a quiet treat in anticipation, in these days when few things have that element of interest, which consists in their being unique.

We have thus far considered modern languages and travel in their influence upon one another. We now purpose to say something upon each, apart from and independently of the other. First, then, of the

* This will imply an acquaintance with the many natural causes in silent operation throughout the world, and especially in regions subject to volcanic influences, all tending to produce changes of the most astounding ultimate magnitude, although the record of them is to be looked for not in history, but in the books of the several natural sciences.

† Messrs. Bell & Daldy's new Horace is a rare specimen of good taste and severity of judgment in illustration.

intrinsic value of the current literature, of which the languages of modern Europe are the vehicle. On this point our readers scarcely need to be told, that there are rich fields of German, and French, and Italian literature, which will repay cultivation. The rules which apply to our own general literature apply, of course, equally to that of other countries. There is much that is to be avoided in both, but there is also abundant opportunity of learning, from reviews and other sources, where the good is to be found. Dr. Arnold's Canons, before quoted, will here too be found to furnish invaluable rules for the guidance of the student.

To speak of Dante, or Tasso, or Molière, or Fénelon, or Goethe, or Schiller, and other such names, individually, would be beside our purpose —to praise them an error in judgment. We will only say that, in giving preference to such names over the writers of the day, the ordinary reader will be spared the necessity for much serious question as to the tendency of his studies. All honour be to the laborious zeal of the German schools of learning, all gratitude for their contributions to every branch of literature, all caution and wariness of judgment be to us in handling such of these as touch upon religion or philosophy!* Not, indeed, that they have not written much, in both of these subjects, that demands the attention of divines and philosophers, but this is just the point: *ordinary* readers had best be content to receive the stream of German speculation after it has passed through the filtrating medium of our soberer (if less subtle) national intellect. Our theology and our science have benefited in proportion as this process has been ably carried out, by men of competent power, of fair and independent judgment, and, at the same time, adequately imbued with the learning and the mind of antiquity.

To say no more than this of a literature so vast in extent, and so powerful in its influence upon the present and the future interests of mankind, is indeed to say the least that can with decency be said of it. But for the present it may suffice.

Of the advantage of a knowledge of the languages of modern Europe much might have been said before the opening of the present war, which it would be superfluous now to repeat. The force of circumstances has read and will continue to read the most effectual lesson on this point.

The remarks on Travel must be reserved for our next number.

J. S. G.

---

* "Having been personally acquainted, or connected as a pupil, with Eichhorn and Michaelis, he knew the whole cycle of schisms and audacious speculations through which biblical criticism or Christian philosophy has revolved in modern Germany. All this was ground upon which the Bishop of Llandaff trod with the infirm footing of a child. He listened to what Coleridge reported with the same sort of pleasurable surprise, alternating with starts of doubt or incredulity, as would naturally attend a detailed report from Laputa—which aerial region of speculation does but too often recur to a sober-minded person, in reading of the endless freaks in Philosophy of Modern Germany, where the spectre of Mutability, that potentate celebrated by Spenser, gathers more trophies in a year, than elsewhere in a century; 'the anarchy of dreams' presides in her philosophy; and the restless elements of opinion, throughout every region of debate, mould themselves eternally, like the billowy sands of the desert, as beheld by Bruce, in towering columns, soar upwards to a giddy altitude, then stalk about for a minute, all a-glow with fiery colour, and finally unmould and 'dislimn' with a collapse as sudden as the motions of that eddying breeze under which their vapoury architecture had arisen."—*De Quincey's Autobiographic Sketches*, vol. i. pp. 218, 219.

ON MENTAL ARITHMETIC.

EXERCISE II.

MULTIPLICATION AND DIVISION.

Second Line.

• and •, or twice one, are two;
there are two ones in two; the half of two is one.

•• and ••, or twice two, are four;
there are two twos in four; the half of four is two.

••• and •••, or twice three, are six;
there are two threes in six; the half of six is three.

•••• and ••••, or twice four, are eight;
there are two fours in eight; the half of eight is four.

And so on to twice twelve.

Problems.

1. A book is *sold** for five pence; how many pence would I have to *pay* for two of these books? *Ans.* Ten pence.

Proof.—The *cost* of one book is five pence; therefore the cost of two books will be two times five pence, or ten pence.

2. The grocer *sells* his sugar for four pence a lb.; how much would I have to give him for two lbs.?

3. I want to divide ten nuts (equally) between two boys; how many nuts must I give to each boy? What part of the ten nuts will each boy get?

4. What is the half of eight pence? If a lb. of currants is sold for ten pence; what would I have to pay for half a lb.? What is the half of ten shillings?

5. I *bought* two mugs; now I had to give seven pence for each mug; how many pence should I give for the two mugs? how many shillings and pence should I give for them?

6. How many pence are there in two shillings? How many farthings are there in two pence?

7. I paid eight pence for two slates; what did I pay for each slate? I paid six shillings for two lbs. of tea; how many shillings did I pay for one lb. of the tea?

8. What should I *pay* for two articles, at the *rate* of eight pence for each article?

9. How many shillings and pence are there in twenty-seven pence? *Ans.* Two shillings and three pence.

Proof.—•••••••••••• •••••••••••• •••
one shilling and one shilling and three pence,
make two shillings and three pence.

Or thus:—Every twelve of the pence make a shilling: in twenty-seven, there are two twelves and three over; therefore, twenty-seven pence are equal to two shillings and three pence.

Obs. Questions of this sort should be given in a more extended form, after the *twelfth line* has been gone over.

10. How many pence are there in eight farthings?

---

* All the words printed in italics should be explained.

11. What is the half of a shilling? What is the half of one shilling and four pence?

12. How many pence are there in eleven farthings? *Ans.* Two pence and three farthings.

Proof.—Four farthings make one penny: there are two fours in eleven, and three over; therefore, eleven farthings make two pence and three farthings.

Or, putting the eleven farthings down:—

• • • • • • • • • • •

one penny and one penny and three farthings make two pence and three farthings.

And so on to similar problems.

Third Line.

• and • and •, or three times one, are three; there are three ones in three; the third of three is one.

•• and •• and ••, or three times two, are six; there are three twos in six; the third of six is two.

••• and ••• and •••, or three times three, are nine; there are three threes in nine; the third of nine is three.

•••• and •••• and ••••, or three times four, are twelve; there are three fours in twelve; the third of twelve is four.

And so on to three times twelve.

Problems.

1. How much should I give for three glasses, when one glass is sold for five pence? *Ans.* Fifteen pence, or one shilling and three pence.

Proof.—The *cost* of one glass is five pence; therefore the cost of three glasses will be three times five pence, or fifteen pence.

2. I gave eighteen pence for three knives; how much did I give for each? *Ans.* Six pence.

Proof.—The cost of three knives is eighteen pence; therefore the cost of one knife will be the third of eighteen pence, or six pence.

3. I want to divide a shilling amongst three poor persons; how much should I give to each?

4. How many farthings are there in three pence?

5. What is the third of a shilling? What is the third of one shilling and three pence?

And so on.

6. How many pence are there in twelve farthings? *Ans.* Three pence.

Proof.—Every four farthings make one penny; therefore twelve farthings will make three pence, for there are three fours in twelve.

Or, putting down the twelve farthings:—

• • • • • • • • • • • •

one penny and one penny and one penny make three pence.

And so on.

Fourth Line.

• and • and • and •, or four times one, are four; there are four ones in four; the fourth of four is one.

•• and •• and •• and ••, or four times two, are eight. there are four twos in eight; the fourth of eight is two.

••• and ••• and ••• and •••, or four times three, are twelve; there are four threes in twelve; the fourth of twelve is three.

And so on to four times twelve.

Problems.

1. What is the fourth of one shilling and eight pence? *Ans.* Five pence.

Proof.—One shilling and eight pence are twenty pence; then the fourth of twenty pence is five pence.

2. What should I pay for four lbs. of rice at three pence a lb.? *Ans.* Twelve pence, or one shilling.

Proof.—I must give three pence for one lb.; therefore for four lbs. I must give four times three pence, or twelve pence, or one shilling.

3. I bought four candlesticks for twenty pence; how much did I give for one candlestick? *Ans.* Five pence.

Proof.—The price of four candlesticks is twenty pence; therefore the price of one candlestick must be the fourth of twenty pence, or five pence.

And so on to similar problems.

4. How many farthings are there in four pence? *Ans.* Sixteen farthings.

Proof.—There are four farthings in one penny; therefore in four pence there will be four times four farthings, or sixteen farthings.

5. I bought some eggs for eight pence: now I paid two pence for each egg; how many eggs did I buy? *Ans.* Four eggs.

Proof.—Every egg costs two pence: now two pence can be taken four times out of eight pence; therefore, you got four eggs for eight pence.

And so on to other problems.

And so on to the FIFTH, SIXTH, SEVENTH, EIGHTH, NINTH, TENTH, ELEVENTH, and TWELFTH LINES.

This exercise should be practised until the pupils are thoroughly conversant with the multiplication and division table. By this means, the memory of the child will be assisted by his reason, for he will be led to construct the table for himself; and thus an irksome task will be converted into a healthful and an amusing exercise, calculated to invigorate the intellectual powers.

Notation.

The common notation of arithmetic, at least, as far as the hundreds' place of figures, should be explained in connection with the TENTH LINE.

The principle of counting by tens should be explained; thus, for example, 3 tens and 2 tens make 5 tens, 3 times 2 tens make 6 tens; and so on.

The teacher should show how high numbers (below a hundred) may be read in tens and ones, or units; thus, thirty-six are 3 tens and 6, or 36, as it is written according to the decimal scale of notation. In order to enforce this subject, such questions as the following may be put:—

In what place do you put figures of units? In what place do you put figures expressing tens? The figures 36 may be read two ways,—name them; why may they be read in these two ways?

THE SYMBOLS AND TERMS OF MULTIPLICATION AND DIVISION.

The sign $\times$ denotes multiplication. The sign $\div$ denotes division. Thus we have, in multiplication,—

••• ••• ••• ••• = 4 times 3, or 3 taken 4 times,
$= 3 \times 4 = 12$;

and in the reverse operation of division,—

the fourth of 12, or 12 divided by $4 = 12 \div 4 = 3$.

In the process of multiplication, the 4 is called the *multiplier*, the 3 is called the *multiplicand*, the 12 is called the *product*, the 3 and 4 are said to be *factors* of 12, and 12 is said to be a *common multiple* of 3 and 4; and in that of division, the 4 is called the *divisor*, the 12 is called the *dividend*, and the 3 is called the *quotient*.

Sometimes the divisor is placed below the dividend; thus we have

$$12 \div 4, \text{ or } \tfrac{12}{4} = 3.$$

The *common divisor*, or *common measure*, of two numbers is the number which will exactly divide them both; thus 4 is a common measure of 8 and 12, for it will divide them both without a remainder: in this case, 4 is *the greatest common measure* of 8 and 12, for it is the greatest number which will exactly divide them both.

The *least common multiple* of two numbers is the least number which is exactly divisible by both of the numbers; thus 18 is the least common multiple of 6 and 9.

The explanation of these terms will be best given in connection with the problems hereafter proposed.

Examples of Symbols.

1. •• •• •• •• •• = 5 times 2, or 2 taken 5 times.
$= 2 \times 5 = 10$;

and in the reverse operation of division, we have,—

the fifth of 10, or 10 divided by $5 = 10 \div 5 = 2$.

2. •••• •••• •••• = 3 times 4, or 4 taken 3 times,
$= 4 \times 3 = 12$;

and in the reverse operation of division, we have,—

the third of 12, or 12 divided by $3 = 12 \div 3$, or $\tfrac{12}{3} = 4$.

3. ••••• ••••• ••••• = 3 times 5, or 5 taken 3 times,
$= 5 \times 3 = 15$;

and in the reverse operation of division, we have,—

the third of 15, or 15 divided by $3 = 15 \div 3$, or $\tfrac{15}{3} = 5$.

MIXED PROBLEMS.

I. *Multiplication and Division.*

1. Multiply eight by three, and then divide the result by four. *Ans.* Six.

Proof.—Three times eight are twenty four; and then the fourth of twenty-four is six.

2. Divide twenty-eight by seven, and then multiply the result by five. *Ans.* Twenty.

Proof.—The seventh of twenty-eight is four; and then five times four are twenty.

3. I paid fifteen pence for three mugs; what should I pay for two of the same sort? *Ans.* Ten pence.

Proof.—The cost of three mugs is fifteen pence; therefore the cost of one mug will be the third part of fifteen pence, or five pence; and then the cost of two mugs will be two times five pence, or ten pence.

4. If five articles cost twenty pence; what will eight articles cost? *Ans.* Two shillings and eight pence.

Proof.—The cost of five articles is twenty pence; therefore the cost of one article will be the fifth of twenty pence, or four pence; and the cost of eight articles will be eight times four pence, or thirty-two pence, which is two shillings and eight pence.

Teacher. How do you find the cost of one article?

Pupil. By dividing the whole cost by the number of articles.

Teacher. Why do you first find the cost of one article?

Pupil. When I have found the cost of one article, I can then easily find the cost of eight, or of any other number, by multiplication.

5. If five lbs. of rice cost fifteen pence; how much should I pay for two lbs.? *Ans.* Six pence.

6. I paid sixteen pence for four lbs. of sugar; how much should I pay for three lbs.? *Ans.* Twelve pence, or one shilling.

And so on to other problems of this sort.

II. *Miscellaneous Problems.*

1. I bought three lbs. of rice at two pence a lb., and also some wood for which I had to pay four pence; how much should I have to pay altogether? *Ans.* Ten pence.

2. I had one shilling and four pence in my pocket this morning, but out of it I paid nine pence for some paper; how much have I left? *Ans.* Seven pence.

Proof.—In one shilling and four pence there are sixteen pence; then nine pence taken from sixteen pence leave seven pence.

3. How many shillings are there in two pounds? *Ans.* Forty shillings.

Proof.—In one pound there are twenty shillings; therefore in two pounds there will be twice twenty shillings, or forty shillings.

4. From one pound three shillings take away sixteen shillings. *Ans.* Seven shillings.

Proof.—In one pound three shillings there are twenty-three shillings; then sixteen shillings taken from twenty-three shillings leave seven shillings.

5. A woman bought some nuts for ten pence and sold them for one shilling and two pence; how much did she *gain?* *Ans.* Four pence.

6. A farmer's wife sold some chickens for two shillings and six pence; with this money she bought seven lbs. of sugar at four pence a lb.; how much did she take home? *Ans.* Two pence.

Proof.—The cost of seven lbs. of sugar at four pence for every lb. will be seven times four pence, or twenty-eight pence; now two shillings and sixpence make thirty pence; then twenty-eight pence taken from thirty pence leave two pence.

7. A person bought three books for ten pence and sold them for five pence each; how much did he gain? *Ans.* Five pence.

8. How many shillings are there in one pound seven shillings? How many pounds and shillings are there in thirty-two shillings?

And so on.

9. What two numbers multiplied together give six? *Ans.* Two and three.

10. What two numbers multiplied together give ten? *Ans.* Two and five.

11. What are the factors of fifteen? *Ans.* Three and five.

12. What numbers will exactly divide eight? *Ans.* Two and four.

13. What numbers will exactly divide twenty-one? *Ans.* Three and seven.

14. Name the two numbers which multiplied together will give twelve? *Ans.* Two and six, three and four.

15. What is the greatest number which will divide twelve without a remainder? *Ans.* Six.

16. What is the greatest number which will divide eighteen without a remainder? *Ans.* Nine.

17. What number will exactly divide six as well as nine. *Ans.* Three.

18. What number will exactly divide ten as well as fifteen? *Ans.* Five.

19. Mention all the numbers which will exactly divide eight as well twelve? *Ans.* Two and four.

20. Mention all the numbers which will exactly divide twelve as well as sixteen? *Ans.* Two and four.

21. What is the greatest number which will exactly divide eight as well as twelve? *Ans.* Four.

22. What number will two and three both divide without a remainder? *Ans.* Six, twelve, &c.

23. What is the least number which two and three will both exactly divide? *Ans.* Six.

(*To be continued.*) T. T.

MORALS TAUGHT AT HOME.—"All your national schools, all your trade schools, all your ragged schools, all your sermons, will effect no lasting good until you begin at the beginning, and make the education of your girls a very different thing from what it is. Mind you, I do not say that your schools will not make boys cleverer, more intelligent, to have a keener view to their own interests, better workmen, more skilful mechanics, more knowing in politics—aye, or even in religious disputes, than if they had not received such instruction; but their moral improvement,—I do not care where or what the school is, or who the master,—will not advance in the same proportion as their intellectual. Now, the truth I shall endeavour to establish is this, that while the intellectual progress of a boy chiefly depends on his application to what he learns at school, his moral education mainly depends on what he sees at home. Some of you, no doubt, will be surprised at my deliberately asserting that, while book learning depends very much, moral character in general depends very little, on the school he may go to. The boy receives his instruction from his teacher; his education—that is, his moral habits—from his parents. This I believe to be the great difference between instruction and education; the one the boy receives from his teachers, the other from his parents. * * * * * Neither men nor children can be lectured into sobriety, piety, truthfulness, and the like. They are trained to them, not talked into them. It is a long time since the saying was uttered, 'Train up a child in the way he should go, and when he is old he will not depart from it;' a truer and a pithier one has not been uttered since. The fact is, our virtues are habits rather than beliefs. Now, short as this saying is, it is about the most important I could utter."—*Lecture on Female Education of the Industrial Classes, by the Rev. Dr. Booth.*

POLITICAL ECONOMY.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—Few secular subjects are more important than Political Economy, and few, I fear, have less attention bestowed upon them in our schools. Is it not desirable that the attention of teachers should be called to this fact, and a more extended knowledge of the subject advocated? For though Political Economy has depths beyond the reach of superficial minds, yet has it also shallows into which even children may venture. They might have clear notions imparted to them upon value, the uses of capital, the fluctuations of wages, the duty of contributing to the necessities of the state, the utter impossibility of a state of equality, and many other points of which such erroneous, and consequently mischievous, notions are too commonly entertained. The nature of savings'-banks, provident and assurance societies, and the benefits to be derived from them, might be familiarly explained and illustrated. And what would be the effect of such knowledge? It would improve the minds of the taught, and make them take greater interest in the commercial history of their country. By approaching the subject step by step, they would discourage that distaste for sober sense and dry detail which is too often the characteristic of youth, and than which nothing sooner leads to error. Useful citizens they could not well fail to be: and this is what every teacher should wish his children to become. Even if they do not possess brilliant abilities, it matters not: sparkling parts are not absolutely necessary to individuals, nor to society, though they may adorn both; but correct views of those matters which concern our relations with each other, are like current coin, of which we have daily occasion in the ordinary occurrences of life.

Trusting that the subject will be noticed by those who are able to do justice to its importance, I remain, yours obediently, ALBERTUS.

PUBLIC EXAMINATIONS.—"While, then, I think that too much stress is at present placed upon showy exhibitions and celebrations, and that objections and dangers attend *examinations*, as frequently conducted, I would not recommend altogether their discontinuance. I would rather urge that the teacher, by his inflexible honesty, should make them fair representations of the actual condition of his school, without relying very much upon them as a means of stimulating the pupils to exertion; that the pupils should be made to feel that the *results of their exertion through the term*, rather than *a few special efforts near its close*, would be brought into view; that no *hypocrisy* or *management* should ever be tolerated, in order to win the applause of the multitude; that no particular lessons should ever be assigned for the occasion; that it should be remembered, that the moral effect of an occasional failure at examition will be more salutary upon the school than unbroken success; and that the children are irreparably injured when they are made in any way the willing instruments of false pretension. Under such circumstances, examinations may be profitable to all concerned. If teacher and pupils have done well, they have the opportunity of showing it without violence to their own consciences. The employers, and patrons, too, have some means of forming a correct estimate of the value of their school; and all parties may be encouraged and stimulated. But above all things, LET THE TEACHER BE HONEST."—*Papers on Popular Education.*

Notes of New Books.

Materials for a Grammar of the modern English Language. By George H. Parminter, B.A. Pp. 219. Cambridge: Macmillan, 1856.

Mr. Parminter's aim is to fuse into one system the grammatical principles of the English and ancient and classical languages, for the better elucidation of the structure of English literature. This little work seems to be the offspring of notes "jotted down at various times during a period of twelve years," which are "the memoranda of almost daily practice with private pupils and in national schools in the difficult task of teaching English."

The fusing of the principles of languages into one system, which have little or nothing in common and are altogether incongruous with English, is a simple impossibility which Mr. Parminter has not effected. In short we have in vain sought for any useful novelty in this book. It is as little explanatory as any grammar we ever saw, and as little intelligible in style. Take, for example, the first chapter on Syntax. After describing fairly enough what syntax is, the rules begin thus:—

"RULE I.

"THE NOMINATIVE IS THE CASE OF THE AGENT TO AN ACTIVE VERB, OF THE OBJECT TO A PASSIVE VERB, OR OF THE SUBJECT TO A MIDDLE VERB, AND GOVERNS ITS VERB.

Ex. 1. *I* walk.
2. *Virtue* is praised.
3. *They* were offered a reward.

Parsing and Construing.

Ex. 1. Parsing: '*I*,' a personal pronoun, first person, singular number, nominative case.

Construing: *Agent* to the active verb '*walk*,' and *governing* it; by Rule I., 'The nominative is the case of the agent to an active verb, and governs its verb;' as, '*I walk*.'

Ex. 2. Parsing: '*Virtue*' (abstract), substantive, third person, neuter gender, singular number, nominative case.

Construing: *Object* to the passive verb '*is praised*,' and governing it: by Rule I., 'The nominative is the case of the object to the passive verb, and governs its verb;' as, '*Virtue is praised*.'

Ex. 3. Parsing: '*They*,' a personal pronoun, third person, plural number, nominative case.

Construing: *Subject* to the middle verb '*were offered*,' and governing it; by Rule I., 'The nominative is the case of the subject to a middle verb, and governs its verb;' as, '*They were offered a reward*.'

A. The nominative is generally omitted, if it be expressed before in a conjoined clause.

Ex. A righteous man lives contentedly and (...) dies hopefully: supply *man* or *he*.

B. The nominative *follows* intransitive verbs used *inceptively*.

Ex. 1. *There* happened an *accident*.
2. *There* came certain *ambassadors*.

C. An infinitive, or other sentence, may be the nominative to a verb.
Ex. 1. *To have lived* righteously brings peace.
2. *My being present* did not displease.
3. *That he came at all* is a marvel.

D. Nominative sentences *follow* verbs used *indeterminately.*
Ex. 1. It happened *that many were present.*
2. It pleased the Lord *to bless Israel.*

E. The verb '*be*' takes *two* nominatives of the subject, one of which precedes, and the other follows it: these may be called *Cognate nominatives.*
Ex. *Plato* was a *philosopher.*

NOTE. The intransitive verbs, '*appear*,' '*become*,' '*grow*,' '*seem*,' '*look*,' and the passive forms of the transitive verbs, '*call*,' '*name*,' '*esteem*,' '*reckon*,' and the like, follow this rule."

The attempt to Latinize English syntax leads the author into obvious confusion here, even in the statement of his primary rule; it is most awkwardly worded. A better way to word it is thus:—'The agent to an active verb, the object to a passive verb, and the subject of a middle verb, are in the nominative case, which governs the verb.' Virtue is not a neuter noun, either in English or any classical language, but feminine, if indeed it be needful to genderize English nouns not necessarily sexual, which we beg to doubt.

A mistake in this and other 'rules' laid down by Mr. Parminter consists in calling the nominative the '*agent*' to the verb. Take his own example, 'I walk;' in what sense is 'I' *agent* to walking? To us it seems a simple misapplication of the word agent. How much simpler and better is Lindley Murray's definition, that it is the 'subject' of the verb. Substitute a neuter verb, 'I suffer:' is 'I' properly the *agent* here? and must it not sorely perplex a child to have thus to misapply the term? But this is a trifle to the attempt to give a new 'classical' definition to a phrase which is virtually a blunder—'they were offered a reward;' this, Mr. Parminter proposes to call a 'a middle verb.' It seems to us to be simply and purely a passive verb, the use of they, in the nominative case being an abuse of language, and if not 'bad English,' a bad idiom, and admissible only by force of usage. The sentence is an inversion of the correcter one, 'a reward was offered to them.' As Mr. Parminter is resolved to classicalize English grammar perhaps he will be good enough to construe, 'they were offered' literally into Latin. If Mr. P. will buy "Wright's Help to the Latin Grammar," it will enable him to adapt English to Latin much more closely than he has any notion of at present.

The author attempts too much, and plunges into five cases, just as if English nouns have five cases. The only justification of the use of the term, is where nouns govern the verb or are objective to it. Lindley Murray goes a step further and allows a possessive case. He might as well have sinned like Mr. Parminter and given us an English dative. These Latin names of cases are in our humble judgment, applicable only to inflected words. Magist*ri* needs to be distinguished in grammatical nomenclature from magist*er* and magist*ro* and magist*rum*, &c., because they are distinct words, used according to their collocation and meaning; but in English it is not so, and the invariable word 'master' with the

same ending stands in each case; why therefore, give separate names? The distinct use is conveyed, not by the noun, as in Latin, but by the preposition, and it speaks its own meaning. It may be well to say that in the sentence 'the master teaches the boy,' boy is the object, and therefore in the objective sense or case; and that in the sentence 'the boy plagues the master,' boy is used in the case which governs the verb; but when we get to the use of the possessives, the little preposition 'of' conveys the meaning; and indicates the place of the noun that follows far more intelligibly than any technical name for the noun so used.

Mr. Parminter perplexes grammar even more than his modern competitors in that art. We delight in Cobbett's English Grammar, and prefer it to everything that has been written since. There is very little normalism in the English language, and the attempt to reduce it to stricter rules is necessarily a failure. Mr. Parminter is, however, at fault in higher matters; he mistakes even the meaning of common idioms. Here is one out of many instances: "The genitive is sometimes used with a dative signification." [It is never so used.] "'The fear of the Lord is the beginning of wisdom:' The meaning of this sentence is, 'The fear entertained for or towards the Lord,'" &c. Not so: the meaning is, the fear *of* something appertaining to the Lord,—his anger, his judgment, his omniscience, &c. Similarly, 'The love of money,' which he also cites, is another misuse of the word 'of,' which, instead of being adopted as a classical use of the genitive, should have been denounced as a misuse of it. Neither is '*of* wool' used for '*from* wool,'—the genitive for the ablative. They have distinct meanings, however confused in common parlance. 'The acorn is from the oak,' 'the acorn is of the oak' will sufficiently reveal the distinction. In p. 196, Mr. Parminter finds this out, and to the same instance (cloth is made from wool) he appends the converse—gen., '*of*' wool. Here the cloth remaining wool, it is made of wool, and is not 'from' wool.

This is not a commendable book, and we are overdone with grammars already.

Fraser's Magazine, Nos. CCCXIII. and CCCXIV., January and February, 1856. J. W. Parker, London.

Though not exactly an educational work, we must make a divergence in favour of this the prince of Magazines. It has begun the new year with the best numbers yet published. "Friends in Council" improve on acquaintance, and most racy and redolent are the saws and sayings of our old and familiar friends, Ellesmere, Milverton, and Midhurst. Foreign travel has sharpened their faculties, and given increased zest to their wit and wisdom: though occasionally the two former preach a little too oracularly, and make us fancy that Midhurst, Blanche, and Fixer, would be better company. "Prescott's Philip the Second," and "Professor Owen," and "The Science of Life," are each excellent in their very distinct walks. "The Last August in the Baltic" must, we think, be from the pen of our reverend friend of the "Pet." None but that nautical divine could so inimitably transport us into the very midst of our noble fleet, or so graphically portray its *alentour*. The worst article by far is that on Macaulay. It is dull, prosy, and

remarkably ill written; though very fair in its view of the volumes it criticizes.

The view taken in the paper on Scottish University Reform is sound and sensible. It is a practical article, full of valuable suggestions and wholesome sense, likely to be of great use in the settlement of the question it discusses so ably and temperately. But, for the light reader,—and where is the ascetic mortal who is not, at some odd or end of the week, a light reader?—commend us to "Kate Coventry." There is a genuine heartiness about that plucky girl, which makes her lively autobiography as endearing as it is original. We prophesy that it will, if continued, be a most deservedly popular novel: our only fear is, that it will expire within the limits of the general run of magazine tales.

"Bain" and "Scotch Preaching" are good papers. That on "Orthography" is pedantic and *outré*.

Evening Recreations; or, Samples from the Lecture-room. Edited by the Rev. J. Hampden Gurney, M.A., Rector of St. Mary's, Marylebone. London: Longmans.

"Lecturing," says Mr. Gurney in his lively preface, "is the fashion of the day." No doubt of it, and one of its instructors also: so Mr. Alford, Mr. Birrell, Mr. Rose, Mr. Buxton, Mr. Rickards, and some more amiable and able men, have contributed to further Mr. Gurney's wish, and have lectured for him at his Mechanics' Institute on modern poets, House of Commons, St. Petersburg, Thomas More, old Bunyan, &c. &c.; and very good and readable these lectures are, forming a capital volume to read to our families; and they may well serve those schoolmasters who love their pupils, by serving them for lectures too, assembling them in these winter evenings for this pleasant and useful purpose.

Hints and Helps for Teachers in using the third new Class-book. Pp. 195. London: Sunday-school Union.

This little book usefully enlarges on the most important parts of the Testament, and is at once explanatory and suggestive, containing some admirable skeleton lessons, which we strongly recommend teachers of all classes to read and impart.

An Address delivered at the Annual Soirée of the Huddersfield Institute, December 13th, 1855. By Richard Dawes, M.A., Dean of Hereford, Pp. 148. London: Groombridge and Sons.

This address, though discursively written, contains a fund of good sense, and many practical remarks of great value.

The Dean strongly advocates the development of the educational agencies which mechanics' institutions possess. "They have fallen far short," he says, "of what was expected from them by their original founders or promoters." As regards instructive classes, referring to the society he is addressing as the text of his remarks, the Dean sketches the desiderata of such institutes (and we reserve further extracts for future numbers) in this wise:—

"Your botanical class, which meets in the summer months, forms both

a pleasing and an instructive part of your educational scheme ;* in this, conversational lectures will arise on the habits of plants—how they take up their food—the effect of climate upon them—of atmospheric changes —of the solvent power of water, and how entirely the vegetable world is dependent upon this—and on other points of interest which the pursuit would suggest ; and although such topics may appear trifling to some, they make youth observant and reflective.

"Lectures on natural philosophy and the physical sciences will soon follow what you are doing ; and which I see the directors regret are not yet established. In an institution like yours, such lectures, not only of a general kind, but class lectures for individual instruction, and followed by examinations, ought to be given. For instance, on the doctrine of heat, its effects on matter—on good and bad conductors, showing how this applies to clothing and houses—on elementary chemistry—on the mechanical and chemical properties of water, of the atmosphere, &c.

"We have had a short series of six lectures this autumn, on these subjects, in Hereford, which have been attended with great success, the number increasing from about 40, at first, to 160 ; and if we can obtain such a result in a small agricultural town like Hereford, not at all alive to what is going on in the world, what might not be expected in a town like yours ?"†

The following account of Miss Nightingale will be read with interest :—

"She was always anxious to do good to those around her ; and being desirous of improving her village schools, she set to work to see how she could best qualify herself for it. She came and lived a fortnight with the schoolmistress of my village, attended every day as a teacher in the school, lived with the schoolmistress, taught in the classes, and played with the children. Do you not think this is beginning at the beginning, and the right way of setting about things ? She made it a condition that the schoolmistress should not alter her mode of living while she was with her, and refused to come to the parsonage, because she said she really wished to understand the life of a schoolmistress. What she and the other noble-minded ladies associated with her have done at Scutari and Balaclava you all know. Miss Nightingale is also doing everything in her power to promote instructive and amusing lectures during the winter months at Balaclava, where she now is ; and we must all feel how much her example and that of her associates have done in pointing out a new sphere of usefulness to the ladies of this country, which must have a beneficial effect on female education among all classes."

The Dean speaks of Mr. Norris's prize scheme with great commendation, and also of the Civil Service Examinations, as "one of the most important changes in our social machinery which has taken place for a long time."

Of libraries for working men, Dean Dawes says :—

---

* "'Three Lectures on the Symmetry of Vegetation,' by Dr. Lindley, and delivered to the students at Marlborough House, will be found very useful and instructive in this class, particularly to those who draw. It is published by Messrs. Chapman and Hall, Piccadilly, price one shilling."

† "These lectures were given by Mr. With, the Master of the Blue Coat School, and the fees for attendance, with a seventh on the Microscope, amounted to £14. 10s."

"I will now say a few words on libraries, which are a very important part of these institutions; but in many of them books have been injudiciously chosen. A great part are frequently the outcasts of other libraries; they are entirely deficient in modern books of a standard class, and in that kind of literature which is wanted in order to make them useful."

As respects the Act enabling towns to furnish such libraries from local rates, the Dean hopes that—

"Even in some rural districts, where the Act applies, it may at no distant period be brought into operation. A good example of a combination of parishes for this purpose, well worked out, would be of the greatest service. In our small rural towns and parishes, however, we shall still labour under difficulties, and I fear we are but ill prepared to make use of libraries, even if we had them. This question, however, of supplying our rural districts and towns has been taken up most ably by Lord Stanley, as you may have seen in the public papers. He has shown, as regards libraries, that we are far below almost every nation in Europe. We have only one-eighth of the accommodation of Saxony in this respect, one-sixth that of Bavaria, and two-fifths that of France; and although we have between eight hundred and nine hundred mechanics' institutes having libraries, yet these, with few exceptions, are little more than nominal."

Honourable mention is made of employers like Messrs. Spottiswoode, the Prices, and Messrs. Ransom of Ipswich, who largely minister to the education and intelligence of their workmen.

Lectures such as these invite us to occasional pauses in the practical work they aid, in order to contemplate the tendency of present efforts and the direction of future energies.

The great necessity of our times is avowedly that of raising the standard of popular intelligence, not temporarily, but permanently—not for an expiring generation, but for all time. Our educational efforts, if we do not intend to waste, or at least to apply them improvidently, must be directed less to the supply of the gross and inveterate defects of those who have grown old in ignorance, than to the moulding of the young, who may be easily educated, and to whom it is not difficult to impart new tastes and intelligences which will bear fruit an hundredfold. Hence, the superior usefulness and paramount duty of improving school instruction, over the lesser duty of plying the older generation of men with less fruitful influences which uneasily tend to enlarge their minds, and obtain the tardy admission of light and its concomitant love of learning. Though we ought not to be deterred by the obvious difficulty and barren results of such attempts from making the experiment; yet, at the same time, it is well to bear in mind the obvious fact, that the great bulk of our ammunition and effort must be reserved for that younger class, upon whom these agencies will tell with incomparably more effect than on any other.

We find a negation of all this laid down in the most oracular tone by the "Morning Post,"* in which a reviewer of Dean Dawes's lecture holds, that the means of education will be of little avail, unless we can

* On February 4th, 1856, p. 6.

first "reform the habits and tastes of the people, which make them careless whether their children be educated or not."

In the first place, this is not so. The English poor are now very generally aware of the advantages of education; and very many more are deterred from making the sacrifice necessary for it by a conviction of the inferiority of the article supplied, than are deterred by any indifference to its uses when really good. The truth of this rests not on a mere *ipse dixit;* it is proved by the success of every good school in the kingdom. We do not know of one which is an exception to this rule: Make your school good, and it will always be filled.

"The present habits of thought" of the parent class of labourers need changing very much, no doubt; but very little as regards that particular habit of thought in the working poor, which consists in the belief that education is one of the most effectual ways of getting on in the world. They do not view the matter through the spectacles of the "Morning Post," or derive their impressions from "the glass of fashion and the mould of form;" they are not polite reasoners, or moved, it is true, by a refined appreciation of the *belles lettres.* Their "habits of thought" fall short even of yellow-plush accomplishments. And it is exceedingly doubtful whether Hodge Stiles will ever rise even to the tastes and sentiments of the servants' hall; but he has a rough and ready-made way of his own of arriving, notwithstanding, at a pretty correct notion of the worldly interest of his children, and how they can better themselves in life. The "Morning Post" opines that this cannot be turned to the account of education, unless the parents are first purged of the *grossièretés* which grieve and shock our polite contemporary; but, to borrow his own classical phraseology,—"With deference to his superior judgment, we think he somewhat miscalculates *in this.*" The excise and post-office appointments offered by the Treasury are probably not, as the "Post" thinks, sufficient to move the peasant schoolwards in any very considerable degree (though they are steps on the right road): but are these the only avocations, with their sparse emoluments, which lie open even to the partially educated, and are closed against the ignorant? Skilled labour, however purely manual it may be, is daily rising, not only in intellectual appreciation, but in money value. The poor labourer sees and feels this for his sons. Self-interest and parental affection enable even his slow vision and stolid perception to pierce through the film which surrounds him into a brighter destiny and a more fruitful sphere for those he loves; and whose well-doing he has as much at heart as if he were the author of "Ten Thousand a Year," or the Corypheus of the "Morning Post" itself. The result is, that he takes the parson's good advice, and stinting himself of an extra half-pint, or it may be his "missus" of her accustomed Easter bonnet, sends Dick to the village-school; foregoing the honorarium which might be otherwise had and obtained from the useful but not intellectual employment of Dick in bird-keeping. But is there a village-school? And, oh!—more important question still—is the learning to be had there worth the cost? Trust Hodge Stiles again for coming at the truth of that: slowly and by rule of thumb he does it, it is true; but they who sell their labour are generally fair judges of the labour they pay for; and the dullard and sloth who has ensconced himself in the village-school, is generally detected, and held at his proper estimate by peasants whose "habits and

tastes" are not a bit advanced beyond beer, bacon, and baccy; and whose shocking ignorance of all kinds of polite literature would horrify the "Morning Post." Astonishing as it seems, these rural ignorami do manage to form estimates not widely erroneous, whether their sons and daughters learn what is useful or not; and the education of a village progresses very much according in proportion to the utility of its school.

These things being so, it has struck Dean Dawes, and many more who follow in the same course, that the better we make these schools, the more are we raising the poor, and especially that generation which will soon people England and her vast empire; and that by thus giving them the keys and seeds of knowledge, we can most effectually chasten and elevate their "thoughts and habits" towards the standard of civilization for which the "Post" yearns. How this common object is to be furthered by the spirit in which our contemporary attacks the Dean of Hereford, we have not yet sufficiently advanced "habits of thought" to understand. Apart from the vulgarity of charging the plebeian sum of "sixpence for his lecture," most people would be puzzled to understand what it contains to raise the bile of a polite educationist: so little, indeed, is the cause of this onslaught apparent, that though the Dean devotes forty pages to a forcible and masterly exposition of the great educational necessities of the day, the only portions on which the "Post" bases its attack occupy less than two. They consist only of an approval of Mr. Trevelyan's offer of opening certain offices as a premium to successful scholars, and of an illustration of the worst of the bad habits the "Post" is so anxious to remove, taken from the county of Hereford, in which the Dean lives, and from which he derives his experiences and naturally draws his examples. Ignoring the volume of good sense within the compass of the same pages, the critic of the "Post" pounces on these isolated passages and on one misworded sentence which aggrieves his fine sense of classical propriety, and thereupon vents splenetic remarks which are worthy of notice, only because they usefully indicate one of the masked batteries of which the cause of education has still to beware.

The Dean of Hereford is obnoxious to the "Morning Post,"—not because he approves of Civil Service Examinations,—or falls foul of drunkenness; but because he, of all men, has thrown himself boldly and heartily into the cause of human progress, aiding its great struggles to make head against the selfish interests and foolish dogmas which have their stronghold in ignorance. It is because he disregards the mindless formalism of the worshippers of "mint, anise, and cummin," who would trammel education in her onward way with their tethers and fetlocks on the one side, and the morbid fanaticism which would cast it after its own image, and dwarf it to its own pigmy dimensions, on the other. It is because he has spread, broadcast, the glorious treasures of knowledge,—scattering its hoarded riches in their fulness among all ranks and orders of men,—dealing with the same hand, power to the behests of modern intelligence and death-blows to the dynasty of those obsolete opinions and effete interests, of which for half a century the "Morning Post" was the servile advocate, and is still the lingering ally. Hence, the anxiety of our contemporary that the education of the youth of England should be deferred till the older generation be raised in

taste and habits of thought; in other words, that what is practicable should be postponed to what is impracticable. Hence, also, the rancour of such writers against those who, like the Dean of Hereford, Canon Moseley, the National Society, Lord J. Russell, Lord Ashburton, Dr. Booth, Mr. Goodwin, Lord Stanley, Mr. Pears and many others, decline this retrograde policy, and do the work their hand findeth to do with a will and a power to do it well and wisely, which under God's blessing, is the best surety of success, and will earn for them a reputation no less enduring than brilliant as the worthiest benefactors of their fellow men, alike in time and eternity.

Mathematical Dictionary and Cyclopædia of Mathematical Science. By Charles Davies, LL.D., and William Peck, Esq. Pp. 592. New York: Barnes & Co. London: Sampson, Low, & Son, 1855.

This is a very valuable book, and admirably illustrated, as well as plainly and nicely printed (an unusual subject for praise for an American book, for transatlantic types are usually signally devoid of beauty and symmetry, and have a meagre and ugly aspect, which this work avoids more than most we see).*

The definitions are for the most part good and accurate, but not always so terse and comprehensive as the nature of the book requires. 'Exponent,' for instance, should, in its simple form, be explained as the multiplier of the quantity over which it is placed, instead of "a number written *to* the right, and above a quantity, to show how many times it is to be taken as a factor," which is verbose, and wanting in precision; yet "exponent" occurs frequently throughout the work as a radical term, explanatory of others.

A fraction is said to be "A *collection* of equal parts of 1." If so, what is $\frac{1}{3}$ or $\frac{1}{5}$? Certainly not a "collection," but one part only. Why not adopt, even in the United States, the definition framed by this JOURNAL—'one or more equal parts of one?' If we were writing in America, we should extol this invention of ours; as we are on the modest side of the Atlantic, we humbly submit it to the better discretion, and recommend it with all due diffidence and deference, to the adoption of our brethren on the other side.

The authors say that it has been "a leading object of this work to define, with precision and accuracy, every term which is used in mathematical science; and to afford, as far as possible, a definite, perspicuous, and uniform language.

"2. A second object is, to present, in a popular and condensed form, a separate and yet connected view of all the branches of mathematical science.

"3. The work has also been prepared to meet the wants of the general reader, who will find in it all that he needs on the subject of mathematics. He can learn from it the signification and use of every technical term, and can trace such term, in all its connections, through the entire science. He will find each subject as fully treated as the limits of the work will permit, and the relations of all the parts to each other carefully pointed out."

---

* Some of the matrices are cut, however, out of the perpendicular, and the letters do not always range.

It is but fair to admit that the book really justifies, in the main, all these commendations. The design, to use full and accurate definitions, is, on the whole, less successfully executed than the execution of mathematical processes, which are usually clear and good, though the authors might have benefitted by previously reading one or two of our recently published works on dynamics. The work is certainly a very valuable addition to scholastic and scientific literature.

Lessons in General Knowledge. By Robert James Maine, M.D. Pp. 368. London: Longmans, 1856.

We have already expressed our approval of the very interesting and instructive lessons in general knowledge which this book contains. They are interesting and instructive to children without being either prosy or curt. There are one or two mistakes which it would be well to correct, *ex. gr.*, p. 322, it is stated that "visible points not more than ninety yards in diameter can be seen, with Rosse's telescope, on the moon." On the contrary, none much less than a mile in diameter can be seen distinctly. Thus the small projections seen on what has been deemed to be sea in the moon, are no proofs that it is not sea; it is much more probable that these are volcanic islands.

The lessons on the steam-engine, mountain chains, and Esquimaux, the telescope, Herschel, and those relating to the animal frame, are admirably written, and reflect great credit on the learned author.

Principles of English Grammar. By James Douglas. Eleventh edition. Pp. 174. Edinburgh: Black. London: Longmans, 1855.

Mr. Douglas has been long known as the successful author of one of our best and simplest grammars for schools. There are, however, in it some mistakes, or at least axioms such as we deem erroneous. For instance, Mr. Douglas holds to impersonal verbs. We maintain that there are none whatever. "It rains," for example, does admit of a nominative; for there is one in the phrase of which it is merely the elliptical expression; for the weather, or state of the weather, is, that it rains: the pronoun is impersonal, but not the verb, for it is used in its natural and conjugable sense. We have no analogous expression or verb to "oportet;" and grammarians only get to sea in trying to latinize English syntax. Sometimes new laws are laid down a little too oracularly: "Collective nouns conveying plurality of idea require a verb in the plural, as, *the people shout.*" Will Mr. Douglas go the length of saying that "The Cabinet meets to-morrow" is bad grammar? Nouns of multitude admit of either singular or plural verbs, is a good old rule. The use of two negatives is not sufficiently defined to guard against the common blunder in such a sentence as this, "He can not read nor write;" or this, "He can neither read or write." Most of the definitions are, however, simple and good; but some expressions used are singularly inaccurate: "What kind of *a* pronoun is which?" This is strange English, and should not occur in a book on grammar; nevertheless, on the whole, the book is good.

An Improved System of Geography. By Francis McNally. Series No. 3. Pp. 93. New York: Barnes & Co.

The Maps are pretty fairly executed in this atlas, though there are tremendous halos round the islands. It contains altogether some very valuable information, which consists chiefly of descriptions of different countries, and their manufactures, &c. But this information is defective, for instance: "The coal-mines of Derby and Northumberland are very extensive;" thus entirely omitting those of Cumberland, Yorkshire, and Leicestershire. London, we learn, is chiefly noted for its seminaries!! The most defective part of the book is the spelling, which is shocking; *ex. gr.*, "jewe*lry*," "woo*l*ens," "*sk*epticism." There are some useful statistics at the end. The most valuable part here is the series of maps of the United States which are elaborate, and we dare say accurate beyond anything within the compass of our Schools, though the descriptive geography of other countries is remarkably fair, and generally very correct.

Analytical View of Sir I. Newton's Principia. By Lord Brougham, F.R.S., and E. J. Routh, B.A. Pp. 442. London: Longmans.

The objects of this work cannot be better explained than in the introductory words of the editors. It is—"First, to assist those who are desirous of understanding the truths unfolded in the *Principia*, and of knowing upon what foundation rests the claim of that work to be regarded as the greatest monument of human genius; secondly, to explain the connection of its various parts with each other, and with the preceding and subsequent progress of science."

Two classes of readers to whom the *Principia* has hitherto been well nigh a sealed book will find the analytical view specially adapted to their cases. The first class consists of those who, without going into the reasoning or examining the grounds, wish to obtain a general, and at the same time a connected, idea of the discoveries which Newton made, and the results of them. The second class, those who, with only a moderate amount of mathematical knowledge, are desirous of understanding the reasoning by which the discoveries were made. The difficulties that have hitherto met these classes from the synthetical method adopted in the original work, and also from the antiquated mathematical processes, are too well known to the world at large. The analytical view is drawn up in such a manner that these two classes may study it independently: directions are given in the introduction what portions of the work may be omitted by non-mathematical readers, without breaking the links in the general view.

Let it not, however, be supposed, that the analytical view will be found useless to the professed mathematician: we venture to assert, that by no class will it be more appreciated. The connection of the different parts of the *Principia*, the relation of its principles to the preceding and subsequent stages of science, the substitution of the analytical for synthetical, and of algebraic for geometric methods,—the various ramifications into which the discoveries have developed themselves, their practical uses, the general corroboration, both of the processes of discovery and of the discoveries themselves by modern mathematicians, together with the occasional correction of the errors into which Newton fell,—all

these topics, ably handled, make the work a most valuable commentary on the text of the *Principia*, at once suggestive, inventive, and instructive.

It will hardly be expected that we should enter upon a criticism of this work, or even upon an analysis of its contents. We conceive that we shall have done more service to our readers by stating, as we have done, almost in the words of its authors, the general plan pursued, and the objects contemplated. We have perused portions of it with the greatest satisfaction, and feel confident that all who follow our example will express a similar opinion.

A Dictionary of Epithets. By C. D. Yonge. Pp. 96. London: Longmans.

A useful little manual, the object of which is to supply the *sense*, as well as the quantity, of the substantives which form the subjects of an ordinary Latin Gradus, and of the epithets which qualify them. Of all old school-books, the "Gradus ad Parnassum" was the most deficient, affording, as it did, great assistance in the *mechanical* formation of verses, but totally devoid of all that would minister to *sense* or *taste*: supplying the elements for the manufacture of hexameters and pentameters, but doing nothing for poetry *per se*. Mr. Yonge's works are constructed on a truer principle: to each epithet he adds the *meaning* in English, thus leading the pupil to consider whether the word that will suit in *scansion* will also suit in *sense*, and occasionally suggesting ideas where ideas are wanting. His "Gradus" is adapted for the higher classes: the "Dictionary of Epithets" is intended as introductory to the more advanced work, for the use of the lower classes.

The Geographical Word-Expositor. By E. Adams, T. C. B. Pp. 148. London: Longmans.

The title explains the object of this little work: it contains an etymological exposition of the technical terms and expressive names connected with geography. Thus: "VENEZUELA signifies *Little Venice*, and was so called by the Spaniards, who, when they beheld the Indian villages erected on piles in Lake Maracaybo, thought it resembled *Venice*." "PUNJAB, signifies the country of the five *rivers* or *waters*; *punj*, meaning *five*." "ABERCONWAY, a town situated at the mouth of the river Conway; *aber*, meaning *mouth*, or more properly, the *confluence of waters*, whether it be of two rivers, or of a river and a sea." These specimens are sufficient to give an idea of the general run of the book, which will be found of use to pupil-teachers, and the upper classes in schools.

Card of Latin Prosody. By E. Walford, M.A. London: Longmans.

The student will find in this Card all that he requires to know on the subject of Latin Prosody. The general rules of quantities and versification, the nature of the feet, and the ordinary systems of metre, are all explained clearly and correctly.

A Key to Practical Mathematics. Pp. 313. London: W. & R. Chambers.

We have lately had occasion to notice in the most favourable terms the volume of Chambers's Educational Course entitled Practical Mathematics. We are now presented with a Key to the exercises in that volume, which will prove a very great assistance to self-taught mathematicians (of whom there are now not a few among our national schoolmasters), as well as to those teachers whose multifarious duties do not allow them time sufficient to work out all the examples, which their pupils are unable to do for themselves.

Hesiod, Callimachus, and Theognis, literally translated. By the Rev. J. Banks, M.A. Pp. 495. London: Bohn.

This volume forms one of the series of Bohn's Classical Library. It contains a literal translation of the works of the poets mentioned, with biographical notices, copious notes, and the metrical translations of Etton, Tytler, and Frere.

Great pains have been bestowed by Mr. Banks both on the translation and the notes; a vast amount of philological and critical matter is embodied in the latter, which gives a permanent value to the work; the translation itself is, what it professes to be, strictly literal, and, as far as we have been able to judge by an occasional comparison with the original, thoroughly to be depended upon for correctness. The difficulty of combining elegance with exactness in translation is well known; and we are not sure that the difficulty may not be best solved by the method adopted in this volume of giving two translations, one in prose, the other in verse, which will mutually supply the wants of each other. Mr. Banks has faithfully fulfilled the task assigned to him, and his translation may safely be referred to by the student who hesitates as to the poet's meaning.

To pass for a moment from the translations to the originals, let us express a hope that the present production will draw attention to these almost forgotten authors. Hesiod, indeed, is better known than Callimachus and Theognis; and yet Hesiod is not a *text-book*, and, beyond the *names* of his chief poems, little is known of him even by well-read scholars. Many of the epigrams of Callimachus are exceedingly beautiful, and the maxims of the sententious Megarean contain a fund of practical wisdom, and are likewise valuable as throwing light upon the political and social state of Greece in his day. The time spent in a study of the fragments of these authors would never be regretted.

A Treatise on the Dynamics of a Particle, with numerous examples. By Peter Guthrie Tait, M.A., Professor of Mathematics in the Queen's University; and the late William John Steele, B.A. 12mo. Pp. 304. Cambridge: Macmillan & Co.

This excellent work contains all the ordinary propositions connected with the Dynamics of Particles which can be conveniently deduced without the use of D'Alembert's principle. It will form a good text-book for students possessing a fair knowledge of the principles of the Differential and

Integral Calculus. At the same time, we cannot help observing that the book might have been rendered more generally useful, if it had contained some practical applications of the principles of Dynamics to the motion of machines, &c. The authors give admirable expositions of the following subjects :—Geometry of a Moving Point's Motion; Central Forces; Motion in a Resisting Medium; Impact; and Motion of two or more Particles.

LITTLE BOOKS.

First Book in Composition, for the use of Schools. By F. Brookfield. Pp. 130. (New York: Burnes. London: S. Low, 1855.)

The Word-builder. By Richard Parker. Pp. 118. (New York: Burnes & Co. London: Sampson Low & Son, 1855.)

Both these authors preface their books, in the true American fashion, with praise of their own books. "Nothing," says the first, "like this little book, either in design or arrangement, has ever been issued from the press."

Mr. Parker announces his book as "prepared on a plan entirely new and original." This originality consists, according to the preface, "in taking such words as are themselves the roots of other words, and which may be expanded into them by prefixing or affixing additional letters, for instance, 'o,' 'on,' 'one,' 'tone,' 'stone.'" We have taken this example out of the frontispiece, and we have in vain looked for any attempt to carry it out in the book itself. The very first lesson consists of 'ha,' 'ho,' 'go' and 'lo,' 'no,' 'so,' 'to,' 'do;' and this is solemnly entitled "words of two letters composed of words of one letter with some other letter prefixed." We should be glad to see any two letters put together, whether they formed a word or not, which would not fall under this definition. In the successive lessons, there is nothing either novel or useful, except that more than half are monosyllabic. The lessons are just like any other child's reading-book, till we come to the dissyllables, all of which are printed as if they were two separate words, as 'ver y,' 'fin gers,' &c., an ingenious plan for puzzling a young reader and making him mispronounce. The woodcuts are exceedingly well done. This little *morceau*, from lesson 33, is too amusing to be omitted; the subject is a prince, and if he "is kind and wise," we are told, "he can do much for the poor. He can give them what they want to eat and drink, as well as what they need for dress. Would you like to live in a land that is ruled by a prince; *or* would you live a free-born lad in a free land?" There is, of course, no other alternative: where there is a prince good-bye to "free-born lads." In other lessons, there are plenty of mistakes; for instance, a 'sheet' on board ship is affirmed to be a sail!

Mr. Brookfield's book, on the contrary, fulfils all its pretensions. It is the best guide to composition we ever saw. On the left-hand page stands a series of suggestive questions on a given subject; on the opposite page are hints how these questions are to be answered in the shape of an essay, which the child is to write in his own words. The subjects are admirable, and judiciously progressive. The author justly takes credit for having wisely proceeded "upon the supposition that the pupil needs not so much instruction in the expression of thought, as an aid to thought itself. It aims" (as he truly says) "to cultivate the practical powers of observation; in other words, to develop thought in relation to perception; and also to give to the young pupil, in the exercise of this faculty, the kind of aid already afforded to older pupils, by analysis and outlines of more difficult subjects."

Poetry Book for National Schools. Pp. 128. (London: Bell & Daldy, 1856.)

This is, without exception, the best book of poetry for children we have ever seen. The matter is well-chosen, the style just that which suits the child-mind, and the rhythm and metre judicious and good. Many of the poems are nicely illustrated by woodcuts. Let schools order this book. It is strongly bound in cloth. A very proper moral pervades the book, and nowhere do we recognise its Christian spirit more than in "The Battle of Blenheim." It is full time that some doubt be thrown on the glories of slaughter. In the next edition, we hope to see a few sea poems. Some naval man should revise them to prevent misuse of terms, if sailing is introduced: it is well to give a share of these poems to maritime interests. Many of the poems may be adapted to tunes with which children are already familiar.

Questions and Answers.

GRAMMAR.—I should feel obliged if you would permit a small portion of your valuable paper from time to time to be devoted to English grammar. I am intending to apply for a certificate, therefore I shall stand in need of aid from any kind friends.

The one I am now going to propose I do not understand.

"I. Paraphrase the following passage :—

"The doctrine of hereditary right does by no means imply an indefeasible right to the throne. No man will, I think, assert this *that* has considered our laws, constitution, and history, without prejudice, and with any degree of attention. It is unquestionably in the breast of the supreme legislative authority of this kingdom, the king and both houses of parliament, to defeat this hereditary right, and by particulars, entails, limitations and provisions, to exclude the immediate heir, and vest the inheritance in anyone else.

"This is strictly consonant *to* our laws and constitions, as may be gathered from the expression so frequently used in our statute-book, of 'the king's majesty, his heirs and successors.' In which we may observe, that as the word 'heirs' necessarily implies an inheritance, or hereditary right generally subsisting in the royal person, so the word 'successors,' distinctly taken, must imply that this inheritance may sometimes be broken through, or that there may be a successor without being the heir of the king."

"II. Parse the following sentence :—

"This is strictly consonant *to* our laws and constitution, as may be gathered from the expression, so frequently used in our statute-book, of 'the king's majesty, his heirs and successors.' "—*M. A.*

Answers.—No. I. is nonsense, and the word "that" should be *who*. The best way to paraphrase it, at the same time stating the law correctly, is to rewrite it thus :—"The doctrine of hereditary right does imply an indefeasible right to the throne ; but like all similar rights it may be set aside by Act of Parliament ; or, as in past times, by the right of might."—To talk of "particulars, entails, and limitations," as flowing "from the breast of supreme legislative authority," is mere jargon and misuse of terms, applicable to the conveyance and descent of property only.——No. II. The parsing is obvious. "Consonant to" is wrong, it is consonant *with ;* the preposition following these compound Latin words should always agree with the prefix ; for example, *ad*jacent *to*, *con*sonant *with*. The argument deduced from the use of the words "heirs *and* successors" is invalid ; it would be less so if it were "heirs *or* successors." 'Or' *is* distinctive ; 'and' is simply copulative, and renders successors surplusage, though in legal verbiage this is very common.

PARSING.—Can you tell me how to parse or give the derivation of the word "off" in this sentence, "I am badly off ? "—*T.*

Answer.—No : it has puzzled the cleverest scholars of the day.

STYLE.—How can I best perfect myself in a given style ?—*D. F. B.*

Answer.—Select a good model. Read a few sentences thrice, carefully noting both the sense and mode of expression ; then, without having got it by rote, shut the book, and write down the same ideas in as nearly the same style as you can. Then compare the original with your imitation, correct the mistakes, and taking a few more sentences, repeat the same process. Do this for an hour daily, and if you have a tolerable facility for expressing yourself grammatically, you will have acquired much of the style you have selected in a couple of months, and if your choice has been judicious, will have greatly improved your own.

PARALLEL DESKS.—Are these good for collective lessons, and why are there always to be three of them?—*Simplex.*

Answer.—Simply because two are too few and four too many for conveniently giving collective lessons, which is one of their great uses.

BOOKS.—Will you recommend me a useful and simple work on book-keeping, also a book of prayers for the use of schools, and a small dictionary, with, if possible, the price of each.—KINGTON.

Answer.—The best book on book-keeping, we think, is that published in the series of the Irish School Books by our Publishers, called "Elements of Book-keeping," with a Key. Both are very cheap. We know of no Book of Prayers fitted for school-children. Those we have seen are not on a level with the child-mind. Perhaps some of our correspondents will inform us if they have been more fortunate. Nuttall's edition of "Walker's Pronouncing Dictionary," published by Routledge, is the best cheap one we know of.

POSTSCRIPT.

LONDON, FEB. 25, 1856.

ON the 15th ult., the Lord President introduced a Bill exactly as we announced last month, for the better administration of public instruction, appointing a Minister of Education, and placing him at the head of a new Board, organized like the Board of Trade. All these Boards are offshoots from the Privy Council, and so it is designed that the Board of Education should be. A good deal of discussion followed, in which the exact constitution of the Board was canvassed; and it may be gathered, that whilst Lords Derby, Ellenborough, Grey, and Brougham desired that the President of the new Board, though called Vice-President, should have undivided control over education and sole responsibility, Earl Granville contemplated that these should continue to be vested in the Lord President of the Council, as at present; the other being a subordinate minister, whose main usefulness would apparently be to represent the educational department in the House of Commons. It seems to us an important difference, as under the latter arrangement it is not likely that any statesman of great standing and repute would accept the office; and it might not always happen that a nobleman of the rank and qualifications requisite for the very high office of Lord President of the Council, might, like Earl Granville or the Marquis of Lansdowne, possess the peculiar attainments or affections essential to a Minister of Education; this point is, however, under consideration. Under any circumstances, the Bill, which was most favourably received, is likely to lead to a much more expanded system of aiding schools, and at this we rejoice heartily.

The discussion which took place elicited from Lords Ellenborough and Grey apprehensions lest education for the poor should become such as to form a "literary peasantry" averse to labour. They both extolled the desirability of teaching working children to work; and Earl Grey said, "The happiness of a poor man's family generally depended upon the handiness and skilfulness of his wife in managing the ordinary affairs of his household, and that was a portion of education of which highly-accomplished schoolmasters and schoolmistresses, who could *recite* the list of Popes from the earliest times to the present, and knew the latitude and longitude of every obscure town in the world, were very often

ignorant." There is no doubt that if they have been wasting their time in acquiring knowledge so remarkably foolish, they do stand a good chance of being ignorant of more useful things; but although Earl Grey greatly burlesques the evil of which he and Lord Ellenborough complain, it cannot be denied that there is not sufficient attention paid to really "common," and being common, essential attainments for the comfort of *daily working life. These things must be looked to more and more,* or education will not accredit itself with the masses of the people.

We are glad to find that homely and industrial subjects are assuming much more prominence in the examination of school-teachers for the poor, and also in testing them by the information of the same kind possessed by their scholars, than was formerly done, or than Earl Grey is at all aware of.

Intelligence.

CAMBRIDGE LIST OF HONOURS AT THE BACHELOR OF ARTS' COMMENCEMENT—1856.

EXAMINERS.

J. Budd Phear, M.A., Clare College.
William Henry Besant, M.A., St. John's College.
Edward John Hillier, M.A., Trinity College.
Joseph Wolstenholme, M.A., Christ College.

WRANGLERS.

Ds. Halley, Joh.
2 Rigby, Trin.
3 Clark, C.B., Queen's, æq.
Ellis, Sidney, æq.
Smith, H. W., Trin., æq.
6 Hardy, Trin.
7 Fawcett, Trin. H.
8 Moore, Pemb.
9 Harlen, Pet.
10 Rouse, Trin.
11 Harpley, Joh.
12 Atkinson, Trin. H., æq.
Bonney, Joh., æq.
14 Dyson, Emman.
15 Duncan, Pemb.
16 Pierce, Corp.
17 Kendall, Joh.
18 Long, Corpus.
19 Marten, Joh.
20 Preston, Emman., æq.
Sharp, Jesus, æq.
Street, Emman., æq.
23 Edridge, Emman.
24 Glen, Emman., æq.
Ward, E. Christ's, æq.
26 Hall, Jesus.
27 Tebay, Joh.
28 Candy, Sidney, æq.
Clark, Magd., æq.
30 Brown, E. F., Cath.
31 Ebden, Christ's, æq.
Rowe, Joh., æq.
Sweeting, Joh., æq.
34 Piper, Trin.
35 Hickling, Clare.

SENIOR OPTIMES.

Ds. Streeter, Clare.
37 Cholmeley, Emman.
38 Wigan, Trin.
39 Cormack, Queen's, æq.
Southey, Caius, æq.
41 Tatham, Joh.
42 Glover, Joh., æq.
Howlett, Caius, æq.
Spear, Trin., æq.
45 Powley, Jesus.
46 Liveing, Christ's.
47 Martindale, Joh.
48 Townson, Trin.
49 Giles, Joh.
50 Challis, Trin., æq.
Nairn, Emman., æq.
52 Exton, Joh.
53 Stone, H., Trin., æq.
Stubbs, Pemb., æq.
55 Acland, Jesus.
56 Bury, Emman.
57 White, Joh.
58 Lane, Joh., æq.
Lawson, Trin., æq.
60 Worthington, Joh.
61 Bell, Christ's, æq.
Nix, Trin., æq.
63 Brown, Trin.

SENIOR OPTIMES (*continued*).

64 Smith, R. H., Joh.
65 Penley, Corpus.
66 Poulton, Joh.
67 Fish, Caius.
68 Gordon, Joh.
69 Pengelley, Queen's.
70 Cutler, Joh., æq.
Grover, Emman., æq.
Mason, G., Sidney, æq.
73 Ransome, Caius.

JUNIOR OPTIMES.

Ds. Elwell, Jesus.
75 Wilson, Magd.
76 Fenton, Trin.
77 Lloyd, Pemb.
78 Marshall, Corpus.
79 Carter, Joh.
80 Culley, Trin.
81 Mead, Joh.
82 Spedding, Trin.
83 Robertson, Trin.
84 Watts, Christ's.
85 Bostock, Trin., H.
86 Creetham, Christ's.
87 Cutting, Corpus.
88 Collins, Sidney.
89 Sills, Joh.
90 Knowles, Cath.
91 Maclagan, Pet.
92 Burton, Caius.
93 Gleadow, Joh.
94 Kelly, Trin.
95 Smith, W. E., Joh.
96 Kennedy, Caius.
97 Wilson, R., Trin.
98 Fuller, Joh.
99 Calverley, Christ's.
100 Raby, Clare.
101 Beach, Joh.
102 Currey, Joh.
103 Jackson, T. H., Joh.
104 Barker, Trin.
105 Balls, Cath.
106 Chapman, Trin., æq.
Darwall, Clare, æq.
108 Stone, Pemb.
109 Currey, Magd.
110 Meares, Trin.
111 Penfold, Trin., H.
112 King, Caius.
113 Nunn, J., Joh.
114 Marriott, Corpus.

ÆGROTANT.—Bell, Caius; Dunning, Trin.; Mason, J.; Trin.; Skipworth, Cath.

We must again protest against the growing vice of bracketing. It is nothing else but an idle habit. Of 35 Wranglers, 15 men are assigned no definite place! What man has a right to say he is third Wrangler? If Ds. Clark, then what are Dni. Ellis and Smith?

LUDLOW ROYAL GRAMMAR SCHOOL.

IMMEDIATELY before the Christmas vacation the pupils of Ludlow School were examined by the Very Rev. the Dean of Hereford, in Chemistry and Electro-magnetism, which subjects had occupied them during the days devoted to Natural Science in the last year. The Dean expressed his satisfaction with the general progress made, and especially marked, as deserving the Head-master's prizes,

Cook, ma.
Lightbody.

Whose names appear foremost in the class-list of each branch.

CHEMISTRY.

1
Lightbody. Cook, ma.

2
Marshall. Barber.
Foster. Cook, mi.
Smith. Hawkins.

3
Page. Anderson.
Thomas. Clough.
Evans. Robins, ma.
Stubbs. Jones.
Roberts. Habberley.

ELECTRO-MAGNETISM.

1 Cook, ma. 2 Lightbody.

3
Marshall. Evans. Foster.

4
Smith. Roberts.

5
Smedley. Thomas.
Page. Barber.
Small. Downes.
Jones. Clough.
Cook, mi. Robins, ma.
Anderson. Hawkins.
Child.

The Natural Science department of the school has been increasing for the last year and a half; and the Laboratory is gradually becoming more and more useful and popular under the able superintendence of Mr. With, the lecturer.

UNITED ASSOCIATION OF SCHOOLMASTERS.

Extract from the President's Address at the recent Anniversary.

"THE spirit of the Baconian philosophy may be characterized by two words,—UTILITY and PROGRESS. The ancient philosophy was stationary, because it disdained to be useful. It propounded imposing abstract theories which had little or on bearing upon the actual condition of man in society. It took its aim at the stars, and therefore hit nothing. It speculated about virtue and happiness, but added nothing to the comforts or enjoyments of human existence. It professed to reform and enlighten the world, but left it as dark and degraded as it ever had been. It was a sort of intellectual gymnasium, in which the intellectual faculties were exercised; but this intellectual action yielded no work—no fruit—as regards the progress of society; the mind revolved in a circle of speculative theories,—the starting point of to-day became the goal of to-morrow,—there was motion, but no progress. The command given by this philosophy was, 'mark time;' and thus, for two thousand centuries, the human intellect continued to mark time. The father of the inductive philosophy gave the command, 'advance;' and society, obedient to this command, has multiplied a thousandfold its resources of enjoyment and happiness. This philosophy was practical; it attempted nothing which could not be accomplished,—it aimed at a plain tangible mark, and hit it. It sought to improve the sciences by advancing the arts. It took the common sense method of induction, which had from time immemorial been successfully followed by the artisan, as the great instrument for advancing philosophy. Its object was UTILITY, and its end PROGRESS.

"It is not generally known, gentlemen, nor generally acknowledged, that Bacon's philosophy, as an inductive philosophy, was really derived from the workshop. The inductive principle had been practised for ages by the workman in his various processes of art. This was thought unworthy of attention by the philosopher of the Platonic schools; but Bacon saw that under this inductive principle the arts had advanced, while the sciences, then so called, had remained stationary; and his own strong common sense showed him that the principle which advanced the arts might also advance universal science.

"Let us inquire, How does this philosophy apply to modern education?

"According to the Baconian philosophy, utility and progress should characterize all our methods of education. To secure progress, we should aim at what is practicable and useful. Until within the last twenty years, the Platonic philosophy infested all our systems of education. The inductive philosophy, which created new sciences, and infused fresh vitality into the old ones, left our educational systems as it found them,—all but worthless as regards the education of the people of a great commercial, scientific, manufacturing, and engineering nation. In our middle and higher class schools, the languages of the ancients, the logic of the ancients, and the geometry of the ancients, formed the great subjects of school instruction; whilst practical science, general knowledge, and nearly all those subjects which bear directly upon the interests of man as an active and a thinking agent, were virtually ignored. This system even failed to accomplish the contracted end which it had in view. It professed to exercise and strengthen the intellectual faculties; but the only faculty which it could strengthen, admitting that to be possible, was that of memory. To remember, recite, and admire what the ancients had done, was the highest end which it proposed. It therefore produced a race of slavish imitators, and not a race of original, vigorous, and practical thinkers. Facts, and the induction of facts, were deemed unworthy of their Platonic philosophy.

"Now Bacon had taught, in his philosophy, that the powers of memory can do little towards the advancement of science. He ranks the achievements of memory with the exhibitions of the mountebank: 'The two performances are of much the same sort. The one is an abuse of the body; the other is an abuse of the powers of the mind. Both may excite our wonder, but neither is entitled to our respect.'

"Gentlemen, I hope that as teachers none of us will ever forget these remarks of Bacon. They are so true, so beautiful; they are prophetic. Even now we hear people talk about improving the memory in schools; but Bacon, who wrote two centuries ago, gives us the true law upon the subject. He says, 'Do not seek to advance science by making any attempts to improve the memory.' Locke, the great metaphysician, also advocated the same view at a subsequent period.

"Even geometry was considered to suffer a degradation whenever its abstract demonstrations were combined with more simple modes of expositions, or whenever it was applied to the business of life,—its essential and eternal truths were vitiated

by the association. This opinion obtains very largely amongst a certain class of educators, even at the present day. 'Take care; do not simplify your geometry; do not attempt to give your children any common sense definitions of geometrical truths; otherwise you will vitiate the eternal, immutable truths of geometry. You must begin with Euclid, and you must end with Euclid.' The men that speak so loudly in praise of Bacon as the father of modern philosophy, will never tell you about this,—that he exposed the systems of education which they are now employing in the education of the people of this country.

"Now Bacon taught, that geometry, as well as all the other branches of mathematics, was valuable as a branch of education only so far as it contributed to supply the wants of society; and that such practical applications, so far from detracting from the discipline which it gave the mind, in reality made that discipline more forcible and complete. He viewed mathematics as an instrument for the extension of art and science, and considered that it should be studied not as an *end*, but as a *means* to an *end*, without which the study would be, in a great measure, fruitless.

"In short, like the Platonic philosophy, the aim of the education of these schools was to raise man above the influence of vulgar wants.

"The principle of utility and progress would lead us to conclude that the education of the boy should fit and prepare him for discharging the duties of the man. But what did the collegiate-trained aristocratic teacher care for the duties and interests of the carpenter, the wheelwright, the engine-builder, or the scientific experimentalist? Their pursuits were altogether foreign to his education and association; of their habits of thought he knew nothing, and cared as little; between him and them there was an impassable gulf; he lived in a quiescent world of abstractions; they lived in a world of action and progress. How could one become the educator of the other?

"The remarks I have made in reference to the middle and higher class schools will apply, with only a slight modification, to the primary schools of the corresponding period."

'THE SOCIETY OF ARTS' holds a public examination, on 9th June, in all ordinary sciences, for associates of institutions, and will award certificates in three classes and prizes.

Notices.

Orders and Advertisements must be sent only to MESSRS. GROOMBRIDGE, 5, *Paternoster Row; the latter, from strangers, must be accompanied by a remittance, according to the following scale:—If under* 40 *words,* 4*s.*; *for every additional ten words,* 6*d.*; *a whole page,* £2. 2*s.*; *a half-page, or one column,* £1. 5*s.* *No deductions are made.*

The JOURNAL *will be sent, free of postage, for one year on receipt of* 6*s.* 6*d.*, *in advance.*

TO CORRESPONDENTS.

"Article on Music, No. 2."—"Education of Citizen, No. 4."—"C. F. W." "E. Stevens."—"J. S. G.," and some Book Notices, in our next; and the extract from the President's Address of the United School Association will be concluded.

ON MENTAL ARITHMETIC.

EXERCISE III.

RATIOS, *or the comparison of two numbers the one with the other.*

When the one number is an exact multiple of the other.

ONE COMPARED WITH OTHER NUMBERS.

Two are two times one; one is the half of two.

Three are three times one; one is the third of three.

Four are four times one; one is the fourth of four.
And so on.

Problems.

1. One marble is what part of seven marbles? Nine marbles are how many times one marble? One lb. of tea is what part of five lbs. of tea? A penny is what part of a shilling? What part of a penny is a farthing?

And so on to other examples.

2. If a yard of cloth cost two shillings; what will seven yards of the same cloth cost? If six slates cost one shilling and six pence; what will one slate cost?

And so on to other examples.

TWO COMPARED WITH OTHER NUMBERS.

Four are two times two; two are the half of four.

Six are three times two; two are the third of six.

Eight are four times two; two are the fourth of eight.
And so on.

Problems.

1. Two marbles are what part of ten marbles? Two pence are what part of a shilling? Fourteen lbs. of sugar are how many times two lbs. of sugar? Two yards of cloth are what part of six yards of cloth? What part of sixteen ounces are two ounces? Two shillings are what part of a pound, or twenty shillings? A sovereign is how many times the value of two shillings? What part of a foot are two inches?

And so on.

2. If two mugs cost four pence; what will ten mugs cost? *Ans.* One shilling and eight pence.

Proof.—Ten are five times two; therefore the cost of ten mugs will be five times the cost of two; but the cost of two mugs is four pence, therefore the cost of ten mugs will be five times four pence, or twenty pence, which is one shilling and eight pence.

3. What will be the cost of two oranges, when a dozen oranges cost eighteen pence? *Ans.* Three pence.

Proof.—Two are the sixth of twelve; therefore the cost of two oranges will be the sixth part of the cost of twelve; but the cost of

twelve oranges is eighteen pence, therefore the cost of two oranges will be the sixth of eighteen pence, or three pence.

4. If two lbs. of tea cost four shillings; what will six lbs. of the same tea cost? *Ans.* Twelve shillings.

Proof.—Six are three times two; therefore the cost of six lbs. of tea will be three times the cost of two lbs.; but the cost of two lbs. is four shillings, therefore the cost of six lbs. will be three times four shillings, or twelve shillings.

5. If fourteen lbs. of rice can be bought for two shillings and four pence; how much should I pay for two lbs. of the same rice? *Ans.* Four pence.

Proof.—Two are the seventh of fourteen; therefore the cost of two lbs. of rice will be the seventh part of the cost of fourteen lbs.; but the cost of fourteen lbs. is two shillings and four pence, or twenty-eight pence, therefore the cost of two lbs. will be the seventh of twenty-eight pence, or four pence.

And so on to a series of similar simple problems, depending upon the comparison of two with the multiples of two.

THREE COMPARED WITH OTHER NUMBERS.

• • • • • •

Six are two times three; three are the half of six.

• • • • • • • • •

Nine are three times three; three are the third of nine.

• • • • • • • • • • • •

Twelve are four times three; three are the fourth of twelve.*

And so on.

Problems.

1. Three pence are what part of a shilling? *Ans.* The fourth part.

2. Fifteen lbs. of sugar are how many times three lbs. of sugar? *Ans.* Five times.

3. If three bottles cost two shillings; what will fifteen bottles cost? *Ans.* Ten shillings.

Proof.—Fifteen are five times three; the cost of three bottles is two shillings; therefore the cost of fifteen bottles will be five times two shillings, or ten shillings.

4. What will be the cost of three cups, when a dozen cups cost one shilling and eight pence? *Ans.* Five pence.

Proof.—Three are the fourth of twelve; the cost of twelve cups is one shilling and eight pence, or twenty pence; therefore the cost of three cups will be the fourth of twenty pence, or five pence.

5. A workman's *wages* for six days is twenty shillings; how much would he *earn* in three days? *Ans.* Ten shillings.

And so on to similar problems, depending upon the comparison of three with the multiples of three.

FOUR COMPARED WITH OTHER NUMBERS.

• • • • • • • •

Eight are two times four; four are the half of eight.

---

* Why? Here we see twelve dots arranged in four groups, and in each group there are three dots; now the fourth of the twelve dots is the number in one of these groups.

•••• •••• ••••

Twelve are three times four; four are the third of twelve.

•••• •••• •••• ••••

Sixteen are four times four; four are the fourth of sixteen.

And so on.

Problems.

1. What part of a shilling are four pence? *Ans.* The third.

2. Four shillings are what part of a pound? *Ans.* The fifth.

3. One pound four shillings are how many times four shillings? *Ans.* Six times.

4. Sixteen hats are how many times four hats? Four hats are what part of sixteen hats?

5. If four lbs. of rice cost nine pence; how much will twelve lbs. of rice cost? *Ans.* Two shillings and three pence.

Proof.—Twelve are three times four; the cost of four lbs. of rice is nine pence; therefore the cost of twelve lbs. of rice will be three times nine pence, or twenty-seven pence, which is two shillings and three pence.

6. How much should I pay for four caps; when eight caps are sold for six shillings? *Ans.* Three shillings.

Proof.—Four are the half of eight; the cost of eight caps is six shillings; therefore the cost of four caps will be the half of six shillings, which will be three shillings.

And so on to similar problems, depending upon the comparison of four with the multiples of four.

And so on to FIVE, SIX, SEVEN, &c., respectively, compared with their multiples.

SYMBOLS OR SIGNS.

The language *the half*, or *one half*, is expressed by $\frac{1}{2}$; thus,
the one half of 8, or $\frac{1}{2}$ of $8 = \frac{8}{2} = 4$.

The language *the third*, or *one third*, is expressed by $\frac{1}{3}$; thus,—
one third of 6, or $\frac{1}{3}$ of $6 = \frac{6}{3} = 2$.

The language *the fourth*, or *one fourth*, is expressed by $\frac{1}{4}$; thus,—
one fourth of 8, or $\frac{1}{4}$ of $8 = \frac{8}{4} = 2$.

The language *the fifth*, or *one fifth*, is expressed by $\frac{1}{5}$; thus,—
one fifth of 15, or $\frac{1}{5}$ of $15 = \frac{15}{5} = 3$.

And so on.

Signs of our Coins.—£ is the sign used to denote pounds; *s.* to denote shillings; and *d.* to denote pence: thus, £2. 4*s.* 5*d.* reads, two pounds four shillings and five pence. A halfpenny is written $\frac{1}{2}d.$; a farthing is written $\frac{1}{4}d.$; and three farthings are written $\frac{3}{4}d.$ Two pence farthing would be written $2\frac{1}{4}d.$; and so on.

MIXED PROBLEMS.

1. Add the fourth of a pound to the third of a shilling. *Ans.* Five shillings and four pence.

2. Take the half of a shilling from the tenth of a pound. *Ans.* One shilling and six pence.

3. I asked a man to tell me his age: he said, that in two years' time he would be twice my present age: now my present age is twenty; what is the man's age? *Ans.* Thirty-eight.

Proof.—Twice twenty are forty. But the man will not be forty until he is two years older. Therefore his age must be thirty-eight.

4. How many oranges should I get for ten pence, when the oranges are sold for two shillings a dozen? *Ans.* Five.

5. A carpenter earns twenty-four shillings in the week; how much must he spend a day, so as to lay by three shillings every week? *Ans.* Three shillings.

And so on.

EXERCISE IV.

FRACTIONAL PARTS OF UNITY.

[The teacher should cut a few potatoes, or any other familiar objects, into the parts required, for illustrating this exercise.]

Halves.

If an apple (or any other thing) be divided into two equal parts, each part is called the half of the apple.

Two halves are one whole; one whole is two halves.

Three halves are one whole and a half; one whole and a half are three halves.

Four halves are two wholes; two wholes are four halves.

Five halves are two wholes and one half; two wholes and one half are five halves. And so on.

Problems.

1. Suppose I take six apples, and cut each of them into two equal parts; how many halves will there be in the six apples? *Ans.* Twelve halves: because each apple contains two halves, therefore six apples will contain six times two halves, or twelve halves.

How many whole apples will there be in seven of the halves? *Ans.* Three wholes and one half; because every two halves make a whole, therefore six halves will make three wholes, and seven halves will make three wholes and one half.

And so on to other questions.

2. How many half-pennies are there in four pence? *Ans.* Eight.

3. How many half-pennies are there in three pence and a half-penny? *Ans.* Seven; because each penny contains two half-pennies, therefore three pence will contain three times two half-pennies, or six half-pennies, and three pence and a half-penny will contain seven half-pennies.

4. How many pence are there in eleven half-pennies? *Ans.* Five pence and one half-penny.

Thirds.

If an apple (or any other thing) be divided into three equal parts, each part is called the third of the apple. Two of these parts are called two thirds, and so on.

Three thirds are one whole; one whole is three thirds.

Four thirds are one whole and one third; one whole and one third are four thirds.

Five thirds are one whole and two thirds; one whole and two thirds are five thirds.

Six thirds are two wholes; two wholes are six thirds.

Seven thirds are two wholes and one third; two wholes and one third are seven thirds.

And so on.

Problems.

1. Suppose I take four apples, and cut each of them into three equal parts; how many thirds will there be in the four apples? *Ans.* Twelve thirds; because each apple contains three thirds; therefore four apples will contain four times three thirds, or twelve thirds.

How many whole apples will there be in eight of the thirds? *Ans.* Two wholes and two thirds; because every three thirds make a whole, therefore six thirds will make two wholes, and eight thirds will make two wholes and two thirds.

If I gave two thirds to one boy, and five thirds to another boy; how many apples would I have given away? *Ans.* Two wholes and one third; because two thirds and five thirds are seven thirds, or two wholes and one third.

And so on to other questions.

2. If I take away two thirds from seven thirds; how many will be left? *Ans.* Five thirds, or one whole and two thirds.

3. If I take away two thirds from a whole; what will be left? *Ans.* One third.

4. Add four thirds and five thirds together. *Ans.* Nine thirds, or three wholes.

5. How many wholes are there in ten thirds? *Ans.* Three wholes and one third.

6. How many thirds are there in four wholes and one third? *Ans.* Thirteen thirds.

And so on.

Fourths.

If an apple (or any other thing) be divided into four equal parts, each part is called the fourth of the apple. Two of these parts are called two fourths; three of them three fourths; and so on.

Four fourths are one whole; one whole is four fourths.

Five fourths are one whole and one fourth; one whole and one fourth are five fourths.

Six fourths are one whole and two fourths; one whole and two fourths are six fourths.

Seven fourths are one whole and three fourths; one whole and three fourths are seven fourths.

Eight fourths are two wholes; two wholes are eight fourths.

Nine fourths are two wholes and one fourth; two wholes and one fourth are nine fourths.

And so on.

Problems.

1. What part of a penny is a farthing? *Ans.* The fourth. Why? Because four farthings make one penny.

2. How many farthings, or fourths, are there in three pennies? *Ans.* Twelve fourths, or farthings.

3. A fourth is frequently called a quarter. How many quarters are there in two wholes and three quarters? *Ans.* Eleven quarters, or eleven fourths.

4. How many wholes are there in nine quarters? *Ans.* Two wholes and one quarter.

5. Add together two farthings and three farthings. *Ans.* Five farthings, or one penny and one farthing.

6. Take one farthing from a penny. *Ans.* Three farthings remain.

And so on.

The exercises on FIFTHS, SIXTHS, &c., should be deferred until the subject of fractions is systematically considered.

MIXED PROBLEMS.

About Half-pennies, and Quarter-pennies, or Farthings.

1. What should I pay for four lbs. of rice at three pence half-penny the lb.? *Ans.* One shilling and two pence.

Proof.—The cost of one lb. is three pence half-penny; therefore the cost of four lbs. will be four times three pence half-penny. Four times one half-penny are two pence, and four times three pence are twelve pence; then twelve pence and two pence make fourteen pence, or one shilling and two pence.

2. What should I pay for five plates at two pence farthing each plate? *Ans.* Eleven pence farthing.

Proof.—Here the cost of five plates will be five times two pence farthing. Five times one farthing will be five farthings, or one penny farthing; and five times two pence will be ten pence; then ten pence and one penny farthing make eleven pence farthing.

3. If six eggs cost four pence three farthings; what will eighteen eggs cost? *Ans.* One shilling and two pence farthing.

Proof.—Here the cost of eighteen eggs will be three times four pence three farthings. Three times three farthings will be nine farthings, or two pence farthing; and three times four pence will be twelve pence; then twelve pence and two pence farthing make one shilling and two pence farthing.

4. If eight yards of calico cost ten pence half-penny; what will four yards cost? *Ans.* Five pence farthing.

And so on.

SYMBOLS OR SIGNS.

The sign of *one half* is $\frac{1}{2}$.
" *two halves* is $\frac{2}{2}$.
" *three halves* is $\frac{3}{2}$.
And so on.
The sign of *one third* is $\frac{1}{3}$.
" *two thirds* is $\frac{2}{3}$.
" *three thirds* is $\frac{3}{3}$.
The sign of *four thirds* is $\frac{4}{3}$.
And so on.
The sign of *one fourth* is $\frac{1}{4}$.
" *two fourths* is $\frac{2}{4}$.
" *three fourths* is $\frac{3}{4}$.
" *four fourths* is $\frac{4}{4}$.
" *five fourths* is $\frac{5}{4}$.
And so on.

The fraction $\frac{2}{3}$, or *two thirds*, may also be read, *two times the third*, or the third of a thing taken two times; and in like manner, the fraction $\frac{5}{4}$, or *five fourths*, may also be read, *five times the fourth*, or the fourth of a thing taken five times; and so on to other fractions.

T. T.

(*To be continued.*)

PRACTICAL HINTS FOR SCRIPTURE LESSONS.—No. 3.

ST. MATTHEW, St. Mark, and St. Luke, each narrate the parable of the sower and the seed. It is in the thirteenth chapter of St. Matthew, in the fourth of St. Mark, and in the eighth of St. Luke. We shall make our references to the first of these versions of the parable, it being the fullest; but we shall refer, wherever occasion requires, to those given by St. Mark and St. Luke.

We are told in both Gospels that earlier on the same day Jesus had made one of those broad declarations of His sympathy and comprehensive fellowship with man, which, even at that early time, was endearing Christianity to all "who had ears to hear" and hearts to feel, and enlisting myriads under its glorious and heavenly banner. The one condition is, that "whosoever shall do the will of my Father which is in Heaven, the same is my brother and sister and mother."

Vv. 1 and 2. These verses enable the teacher to expand the picture of the scene; and if he have any imaginative power, which all teachers ought to have, he will rivet the attention of the children with the materials presented to him by these verses,—the still waters of the great lake—the thronging multitudes on the shore—Jesus entering into the ship—the ship* itself—the Saviour addressing the disciples from it; for, as the noble Greek narrative has it, "the whole multitude stood upon the shore." We are told that He taught them many things by parables, and there is reason to think that His instruction extended to many things which are not recorded, though doubtless similar in character and import; for St. Mark puts this parable as though it were part only of what Jesus said on this occasion, using the words, "and said unto them in His doctrine," in other words, 'as He taught them.'

V. 3. The sower is not our Lord only, but all who faithfully preach and declare God's truth. Otherwise we should not be told (v. 19) that, "when *any one* heareth the word, &c.," in general terms, without reference to who is the preacher. Besides, the parable clearly applies to future time as well as present time.

Vv. 4 and 19. The seed is also comprehensive, and not confined to the Bible alone. In fact, in St. Matthew and St. Mark no noun is expressed,—the thing sown is understood. It must be taken to be that which may spring up; but as the parable is designed to show, however excellent, the fruit depends on the soil that receives it. The soil represents the hearts of the hearers. And herein the distinction exists which determines the produce. First, we have the wayside hearers: the fowls devour it. These are the great multitude who hear with their ears but understand not. The devil obtains the victory, and easily enough snatches truth from the grasp of those whose minds hold it not. Dilate here on the wickedness of lip-learning; and if you are like many a superficial teacher, idly contenting yourself with telling truths and hearing them read, take a useful reproof from this: you are giving wayside instruction, and may just as well give none. The highway

---

* A particular vessel (*το πλοιον*) is uniformly specified. It belonged to one of the fishermen who followed Jesus, who probably reserved it for his service.—See Matt. iv. 22, and John xxi. 3.

represents the multitude who follow the beaten track in hearing without the trouble of comprehending, and whose hearts are utterly unconcerned and remain untouched. This is a strong authority for education. The Gospel demands a cultivated mind. We have no right to expect the fruition of truth in ignorance: the ground should be prepared to receive it. Very weak people and fanatics think education quite unnecessary for religious purposes. They make a great mistake, and are sowing for the fowls on the wayside.

Vv. 5 and 20. Here we have the shallow hearers; the people who are easily impressed, but have no root, or rather no depth or stability of character. Their hearts are not changed; their feelings only are affected; they endure for a while only, and the truth withers within them. When trial and temptation come, they fall away, as St. Luke has it, ch. viii. v. 13. In St. Matthew and St. Mark the word is "offended," or, according to the Greek, "are made to stumble;" and the Greek word in St. Luke (αφιστανται) is the origin of our word apostatize, which is, perhaps, the best word of all; for hasty zealots, whose faith is shallow, are just the class from whom apostates spring: their creed dures not; it cannot suffer trial.

Vv. 7 and 22. Question on the meaning of the thorns, and elicit from them, without looking at verse 22, that they mean the cares and riches of the world, which choke the truth, so that it becomes "unfruitful," or, as St. Luke more mildly puts it, "such as brings no fruit to perfection."

This well illustrates the guard which we must all keep over our hearts, and the care with which we must nurture and cherish religious instruction, whilst actively engaged in the work of the world, and its pleasures and concerns. Riches and cares are not condemned, for they are alike necessary incidences of life; but we are warned here against allowing them to oust the love of God from its place in our hearts. This part of the parable enforces the first Commandment, to which the good teacher will never fail to refer the child. Similar doctrines are enforced in 2 St. John xiv. 16, and in Romans viii. 5, 8; also 1 Timothy vi. 9, 10, which are very pertinent. Dilate on covetousness; cite the tenth Commandment, and the fates of Judas and Ananias.

It is worthy of remark that this beautiful parable deals with three distinct degrees of scanty Christianity and insufficient faith: and that, in each case put, there is more religion than in the one which precedes it. Thus, the temptations stated are in proportion more powerful and insidious; and of these, the deceitfulness of riches is the climax. Worldly cares come next, and which have been well said to "eat up that vigour of soul which should be spent in divine things; to divert us from duty, distract us in duty, quench the sparks of good affections, and burst the cords of good resolutions." Such are the cares,—and they comprise all the lusts of the flesh,—that shallow religion never withstands. Daily and hourly do we witness the conquests of Satan with these mighty agents of evil. Make your children heed them accordingly.

Vv. 8 and 23. The good ground is best explained in St. Luke and St. Matthew; taking the two together, we find it is necessary to a saving faith, that there be first a hearing of the word; secondly, an understanding of it; thirdly, the keeping of it in an honest and good heart. Then, and then only, will the seed bear fruit, and bring forth in

the various degrees in which we learn everywhere that Christians are diversely gifted, "some an hundredfold, some sixty, some thirty."

Much may be said in illustration of all this. Much stress must be laid upon the practical object of this parable. What is to be the result of the good seed in the good ground?—The fruits of righteousness. "Herein is my Father glorified, that ye bear much fruit; so shall ye be my disciples."—(John xv. 8.) And that fruit is everywhere set forth in the Gospel, as consisting, after love to God, of SOCIAL DUTIES. Always uphold the great doctrines of the atonement, and the attributes and offices of the Triune Godhead, as paramount articles of faith; but, then, never cease, in season and out of season, at all times and in all ways, to convince your children that that faith is nothing worth without works. It is, in fact, a dead faith, and no faith at all. Guard them, as you would against poison, to beware of that palsying heresy,—the canker of all spiritual vigour,—the fanatical dependence on vicarious righteousness by those who seek to use it as a make-weight for their own wilful shortcomings in "working out their own salvation." These slothful fanatics and one-sided professors are sham Christians, who have done vast injury to vital religion, and, "as far as in them lay," have desecrated the efficacy of grace. You will use your discretion how far this taint may have affected those under your tuition; but this parable so directly points to the great truths which make religion a reality, that the opportunity ought not to be lost of enforcing the great duty of practical holiness and Christian energy in the daily walk and work of life.

PUNCTUATION.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—In the February number of your valuable and interesting journal, I find a letter from C. H. Davis, with the ominous heading of "Mind your stops!" One of the mysterious initiated whose special business it is to give heed to this injunction and enforce it upon others, with interest awakened I prepared to peruse this paper, if haply I might glean therefrom aught "marvellous or strange" in the annals of Punctuation; when, having finished paragraph 1, I discover the writer to have taken an entirely different tack from that on which he commenced—*i.e.*, that he is not referring to punctuation proper *at all*, but discoursing upon the hydra-headed theme of typographical eccentricity—a subject on which I can confidently assert, from an entire perusal of his paper, he is, necessarily, quite incompetent to offer practical suggestion or advice: and I am still further confirmed in this opinion by the very extraordinary aspect presented by pp. 69, 70, a style which I nowhere else observe, and one evidently dictated by none other than the *discriminating* pen of C. H. D. If your painstaking contributor had fulfilled the obvious intention of his "heading," and, dilating upon the necessity for universal education in the theory and practice of so desirable an art as Punctuation, had pointed out the easiest and best methods of teaching it in our schools, your readers would have derived an undoubted benefit, instead of being lost in perplexity at the curious ingenuity displayed by him in a demonstration as undeterminable as it seems impracticable.

So far as the use of punctuation is concerned in the printing of

books, &c., it must be manifest—first, that no author could *properly achieve* it in the manuscript; secondly, that he would never attempt so laborious and needless a task; thirdly, that the printer's *reader* is far more qualified than himself for it, and would in all probability undo all that had been thus so carefully done, when the printed sheets came before him. With respect to the advisability of a uniform system of style amongst printers, there can be little to object; but as concerns the "diversity of *punctuation*" mentioned by your correspondent, it is evidently a misnomer on his part, as he should be aware that the object of punctuation proper is, the correct rendering of sentences—the facilitating a ready grasp of an author's meaning; a thing, once effected, which lasts as long as the pages themselves, and the operations of which can be based only upon acknowledged rules, and the exercise of practical clearsightedness in their application: whereas, I appeal to any who may have perused C. H. D.'s letter, whether it tends not rather to confuse than to enlighten.

I would further object that C. H. D. is incorrect in supposing the instances he cites are the only *two* now in use: their name is Legion. Example 1, I would suggest, is not necessarily even *correct*: "Is that work out of print?" he argues, should have the interrogation *outside*, because it is the *bookseller's* expression, and not the *inquirer's*. I can see no reason to suppose that the words "out of print" may not be primarily used by the *inquirer*, with reference to a *similar* phrase previously used by the *bookseller*;—Who shall determine they are not? and in this case the interrogation should be *inside*; but were it not so, the sentence, without the words quoted, is *incomplete*, and consequently no inquiry at all. He observes, also, that the *best* mode of marking interpolations is by brackets: an admission at once of want of information; for brackets, in such cases are *alone* correct, and if parentheses be used, it is an error. Again, his proposed plan for omissions is "a line of dots" in numerical proportion to the matter omitted. Supposing this to be followed, and six dots allowed for a short sentence, imagine the grotesque appearance of a page more or less of dots, answering in arithmetical ratio to as many sentences omitted, together with the *vast utility* of the information thus acquired!

In the postscript is laid down another *new* plan for bible references—one injudicious and superfluous, to say the least of it: to prevent "the confusion of chapter and verse," C. H. D. proposes an italic *v* for the former; truly, all who run *may* read, if this pedanticism be practised; but can it possibly be necessary to have anything further than Roman numerals and plain figures in contradistinction the one to the other; and yet C. H. D. particularly cautions authors "to be *careful*" always to italicize their *v's!*

I have troubled you thus far not so much for the purpose of disproving C. H. D.'s observations, as that must be quite unnecessary to those able to estimate their real worth, but to disabuse some of your readers of the perplexity they will have experienced at finding so simple and necessary an art encumbered by such absurd and unnecessary restrictions, and to demonstrate the futility of any but those to whom it rightly pertains, arguing respecting such unimportant matters of detail, on which there are as many opinions as opiniators. If C. H. D. will trouble to explain a facile method of instructing our youth in the "art of reading and writing correctly," as regards this particular, he may confer a public benefit, and will not then have for his objector F. F. W.

DISCIPLINA REDIVIVA—No. 11.

MODERN LANGUAGES AND TRAVEL.—*Continued.*

NEXT of some points concerning travel, apart from the consideration of language. "Travel, in the younger sort," says Bacon, "is a part of education; in the elder, a part of experience."

It is as a part of education that it comes before us here, and therefore the "mental preparation" for it is the first thing to be considered. "In this preparation lies some of the greatest utility and of the greatest pleasure connected with travelling; and without this preparation, what a small thing travel would be. What is it to see some tomb, when the name of the inmate is merely a pompous sound,—the name of an unknown king, duke, or emperor,—compared with what it is to see the tomb of one whose fortunes you have studied—who is a favourite with you—who represents yourself, or what you would be—whose very name makes your blood stir? The same thing, of course, applies in travel to knowledge of the arts, sciences, and manufactures. Knowledge is the best excitement and the truest reward for travel—at once the means and the end. A dignified and intelligent curiosity, how much it differs from mere inane lion-hunting, where the ignorant traveller gapes at wonders which the guides know far more about than he does."*

As indicating some of the subjects on which an intelligent mind naturally fixes in a new field of observation, we think it may be interesting to transcribe a few passages out of some recent letters and a MS. book of notes placed at our disposal by a friend just returned from Italy,—one who has known the needs of younger minds, and is interested in any scheme which has for its object the smoothing of the rough places of discipline, amidst which he has himself grown grey. In them the reader will have the opportunity of learning what kind of topics will (in travel) demand his careful scrutiny, at the same time that, in order to their full appreciation, they will involve in the observer a degree of preparation co-extensive with the limits of a high and liberal education.

"*Rome, Jan* 7, 1856.—I have jotted down each day's exploration of this wonderful old city, and shall have much to tell you; but the whole thing still appears a dream. It grows in interest every day, and I long for time to set quietly to work, with my books around me, and master the whole thing. What a place for a course of history, not Roman only, but of a large portion of the world.

"This morning we have been examining old MSS. in the Vatican Library; also very interesting antiquities. Fancy a suite of galleries 500 paces long in a straight line. The Vatican is a little city in itself, connected with St. Peter's by the grand Scala Regia. My last expedition has been to the Palace on the Quirinal—another stupendous pile, with the colossal equestrian statues of Phidias and Praxiteles [query ?], and a noble fountain in front, on the brow of the Quirinal. . . . . We have had a most interesting expedition beyond the walls, to the Catacombs; two hours underground, with the famous Padre Marchi, the Jesuit, lecturing in the middle,† each person of the party carrying a wax taper

---

* Companions of my solitude.

† My friend, although not an Italian scholar, was able to follow the deliberate and clearly articulated words of the venerable lecturer, *from his knowledge of Latin.*

—a complete subterranean church; you may wander for miles, but not without a guide or a 'clew.' . . . As we approached the Pincian last night, a magnificent thunderstorm was passing over, and lighting St. Peter's and the city grandly. . . . . There is a tragic element mingling with the gay temper of this strange city, and the interest excited by the whole is sad, very sad."

From another letter of the same date:—"My time in Rome is nearly over; but once seen, one can never forget it. You and —— must have your turn next; but don't think of it till you have got up a competent knowledge of Italian. *If I were your age again*, I would master *talking* French and Italian and German. Without the ——, I could not have done half I have done. Hereafter journeys to Paris, Rome, &c., will be as easy as from York to London, or London to Edinburgh formerly; and some travelling is almost necessary nowadays to a schoolmaster. Old as I am, I have been working like a schoolboy, at odds and ends of time, and reading an Italian comedy with Signor Lucentini, 7 paoli = 3s. an hour. My object has been to master the pronunciation; the rest one may do for one's self. . . . . Every day here has been a little history, or rather a turning over of pages of this tattered and shattered huge old stone book, in which the history of nearly half the world's duration is written. A queer old collection of antiquities, now Pagan, now Christian, but more frequently Pagan, Christian, Greek, Egyptian, Etruscan, Barbarian jumbled together—fine scope for the critical faculty in all its branches—a mine of learning half disinterred—art from the sublimest conception to the lowest *bathos*.

"A ramble along the old Via Appia is like passing through a long gallery of antiquities—the Campagna, with its aqueducts stretching away out of sight—the Alban and Sabine hills—the very stones broken up for the roads are historical—bits of statuary marble and granite. Then away over the Campagna to Fidenæ and Veii on horseback, or on foot to the Circus of Romulus, son of Maxentius, and the Grotto of Egeria (there is a stump of her left, hung with maiden-hair fern), and the temples of Divus Rediculus and Bacchus. Oh, for a good horse over that Campagna, among those noble indigenous buffaloes and oxen, and winding through the valleys, for the Campagna is not a plain, although it looks so from the high points of Rome; but I have not been able to compass this, not thinking it prudent to ride yet. One day you are on the top of St. Peter's or the Capitol, or the broken arches of the baths of Caracalla, 'hanging in air;' another, deep down (75 feet) in the Catacombs or Columbaria—wondrous places; or you may stand, lost in dreams, on the *ponte rotto* (rupto), *i. e.* Pons Janiculensis, and look down on old Tiber, running yellow as he did when Horatius Cocles jumped in, and when Horace sang; and see one way the island of the Tiber, with its two bridges; and the other, the old Pons Sublicius (a few stones), the mouth of the Cloaca Maxima of Tarquin, the temples of Vesta and Fortuna Virilis, and Rienzi's house, with the fountain where Castor and Pollux watered their horses after the battle of Lake Regillus, and the Forum and Capitoline and Palatine and Aventine, all within a moderate walk. I like this point vastly; one seems to have got down to the level, the groundwork of Old Rome; elsewhere, save on the Appian Way, or at the bottom of an excavation, or on the Campagna, you are walking over the *débris* of ages and empires, some twenty feet deep and

more. . . . . One of the most remarkable features of modern Rome (as of the ancient) is its multitude of fountains, not dribbling but gushing in all directions. The water is still brought by aqueducts from Lago Bracciano and ——. I am afraid my letter is a jumble; but so is Rome. It will take some time to digest all I have taken in, especially with Naples and Vesuvius on the top of it."

Extract from Note-book: "*Rome, Jan. 9th,* 1856.—Spent the morning in making calls, packing and preparing for my journey to Naples. Take leave of my kind, good friends and Rome at 1½ P.M. Had a last look at the Capitol, Forum of Trajan, the Coliseum, &c., and passed out of the gate of S. Giovanni di Lat., with much regret at having so little time in this ancient city of buried centuries and nations. The weather lately wet and a *scirocco* wind—better this afternoon, but thick in the distance —the Sabine hills invisible, the Alban looming darkly. Enter the Campagna by the new Via Appia, a well-paved road all the way to Albano. Immediately on passing the old gateway, the aqueducts appear and stretch away over the plain to the surrounding mountains—wonderful structures, in all stages of decay and ruin, but very picturesque; these are mainly on the left. On the right is the old Via Appia, with its tombs, &c. The two roads run parallel for some distance, and then diverge to the extent of a mile or a mile and a half. The scene to-day was wild and impressive,—many clouds driving across the sky from the W.N.W., with a bright horizon to the S.W., and bright openings in the clouds here and there. At three miles from Rome the ruins thicken—most picturesque and grand—where two or three viaducts seem to have met and crossed; in one place a tall mediæval tower, probably a watch-tower, is built into the aqueduct—long gaps, and then stretch away with little interruption. All the while the range of tombs, &c., with the grand tumulus of Cæcilia Metella, along the Appian Way, are seen standing up over the Campagna. The Alban hills become more distinct as we approach, being veiled in a thin purplish mist, with many-coloured clouds overhanging and resting on the head of the Alban Mount. Looking back, a long gleam of light shows Rome, with St. Peter's towering above it, and shoots away and lights up, partially, the Sabine hills and the snowy Appennines beyond.

"The day and the temperature is that of October or April in England. There is a wild and awful look about everything—the buffaloes, and the black and rich brown sheep, and the bandit-looking herdsmen—and the deep gullies—and rushing streams—and mouths of excavations in the face of the rock every now and then—a few broken arches—a lump of misshapen ruin—the remains of rank vegetation—the solitude and silence, except of the moaning wind;—all make up a unique picture, when it is remembered how full of old-world memories this plain is. How different from Latium, with its thirty towns!

"After the tenth milestone we are on the skirts of the Alban hills. The Campagna may be considered as nearly crossed. Olive-trees, with their pale-green foliage, and trees of darker green, are seen clothing the sides of the hills, alternating with vineyard and pasture—a grateful contrast to the waste wilderness we have passed. Ruins, which, in one shape or other, have been within eyesight all the way from Rome, are seen also as we gradually ascend the long paved road to Albano. Got out, to walk up the hill and enjoy the prospect, looking towards Rome

and Ostia—bright, but misty and indistinct—a splendid sweep of horizon, showing the extent of the Campagna.

"Castel Gandolfo rises nobly on the left—a mass of conventual buildings, with a (church) cupola, which would be grand if seen before St. Peter's—olives and vines clothing the hills, and descending to the west, and lost in a flood of light. A huge ruin on the right. Here were the villas of Clodius and Pompey, both of which were included in that of Domitian—amphitheatre of Domitian, the scene of the tyranny of the last of the twelve Cæsars—camp of the Prætorian Guard—supposed temple of Minerva—remains of baths—Oscan remains.

"Arriving at the hotel, the sun was descending gorgeously—was ushered into a room commanding a most lovely view to the westward—a pine or ilex grove, to the right a hill, olive-groves on the slopes—ground undulating finely, and then, beyond, the level plain seaward—and such a gush of golden light. Rushed out of the house to get a view from the new viaduct—up in hot haste through the dark wet street, which I thought had no end! Every now and then the rich light breaking through an opening or a gateway, as of some mighty conflagration, the view upwards towards the Alban Mount being dark as night. At length I cleared the town, and for a few moments enjoyed a sight which one can see only now and then—a body of thick, palpable, dazzling light, reached from the eye to the sun, and filled the whole western horizon with intense and awful splendour. Anon it faded; and after looking at the tomb of the Horatii and Curii, which I found, and attempted to sketch—thought to be the tomb of Aruns, son of Porsenna—walked slowly back to the inn to cool and dine. . . Got up a good fire, 'ligna super foco largè reponens.' . . A flask of Alban wine—ay, the very wine *Horace* drank:—

> 'Est mihi nonum superantis annum
> Plenus Albani cadus,' &c.

My first day's journey from Rome has fallen somewhat short of his.

"*Jan.* 10*th.*—At 10 the weather brightens, and the very civil *padrone* has the *cicerone* waiting—a rather ragged specimen of his class, but an intelligent fellow. Off we start up hill, as if about to scale Monte Cavi (Jupiter Latiaris), hid in the clouds; twenty minutes' walk along the road, and then turning off to the left over bare peperino, brings us to the lake. The sudden burst as you scale the margin of the crater, is very fine; its sides rising rather abruptly, and covered with shrubs of various hues of green and brown,—Monte Cavi, Tusculum, Rocca di Papa, the site of Alba Longa faintly visible through the driving scud, with a bold steep spur at the head of the lake, and Castel Gandolfo overhanging at the opposite end, 450 feet above its surface, and the deep dark water rolling before a regular gale of wind. Made a hasty outline, and then struck off, under one of the lips of the crater, to Aricia—inspected the grand viaduct to connect Albano and Aricia by the Nuova Appia Via, thrown over the deep dell which separated them,—a noble modern work. The old Appian winds downward by the tomb of Aruns, and then up to Aricia by a circuit. A rough path down a steep descent to reach it . . . returned to Albano by the road, getting some fine views towards Anxur and Terracina, Monte Giove, &c., and inspecting the volcanic products by the way—peperino and basalt . . . through the gardens of the Villa Doria, past the tomb of Pompey, to my hotel.

"*Naples, Jan.* 12*th*, 1856.—I arrived here last evening, safe and well, from Rome, after a thirty hours' journey, and was off this morning again to Pompeii, whence I have just returned. The last three days have been hard, but very, very interesting—exploring Lake Albano, Aricia, &c., on Thursday morning; through the Pontine Marshes at dead of night; at Terracina about one, and through the Volscian Mountains, lighted by the stars and *glow-worms*, and towards dawn by peasants going up the mountains and into the woods by torchlight—all very wild and grand—saw a large group of women washing by lamp-light at a large bath in the market-place at Itri—arrived at Mola di Gaeta when morning was faintly breaking, and found all the people astir, and the sea dashing over the sea-wall into the principal street—a very queer scene, which I will describe *vivâ voce* if I ever get to —— again. Grand mountains till we arrive at the great plain of the Garigliano—had a good look at the 'taciturnus amnis'—drank real Falernian at Santa Agata, with Sinuessa, about a mile off, full in view—crossed the Vulturnus, and ate oranges at Capua—and dozed, for very weariness, across the vineyards that extend all the way thence to Naples. Got a capital room, up three pairs, but commanding the N.W. horn of the bay, over which such a gem of a moon was shining. After a deep sleep of some eight hours, I looked upon Naples by daylight, and after a very rapid breakfast, drove off in a light calèche (for *due carlini* = 8d.) to the *Strada ferrata*, for the city of the dead. Such a morning one can hardly hope to see again—a glorious sun and sky,—and the air—it was a luxury to breathe it. It was too gorgeous for the object I had in view, and it was hard to believe that I was walking in temples and theatres, villas and houses, that had been entombed nearly 2,000 years. It is not till you have been wandering in those deserted streets, sat on the empty benches of the theatre, walked round the arena, and peeped into the vivarium, visited the shop of the apothecary, the shoemaker, and the barber, seen the oven of the baker, the millstones of the miller, the oil-jars, and the amphoræ of the gentlemen 'well-to-do,' just where their masters left them—it is not till you have read the inscriptions on the walls, and seen the decorations of the houses, and the ruts in the streets, and steps worn by many feet, and especially a statue, one side of whose face has been kissed away, like St. Peter's great toe at Rome—that you feel yourself thoroughly under the influence of the *genius loci*. Having wandered over it for about two hours, my fingers itching to pick up fragments of marble scattered here and there as a souvenir of the spot, but in vain, I booked myself for Castelamare; and, with my head full of what I had seen, I found myself careering back to Naples when it was too late to return. . . . . .

——————————'Hanc etiam vix, Tityre, duco:
Hic inter densas corylos modo namque gemellos,
Spem gregis, ah! silice in nudâ connixa reliquit.'

"Tell —— I saw just such a scene yesterday: the flock before, the *vir gregis* leading, an impudent-looking fellow, and one left behind with her little kid, and two shepherds standing by as if waiting for another."

But before concluding one notice of travel, we must not omit to speak of *home* travel. It is not necessary for a man to leave the British Isles in order to enjoy very many of the advantages of travel. Nay, there are those who contend that it is a very foolish thing to go abroad before

we have exhausted the treasures of our own country. However this may be, there are doubtless many objects of travel which can be secured within the compass of Great Britain and Ireland.

To the lover of grand and picturesque scenery, we would say, "Have you visited the lakes of Scotland and Ireland, or of Cumberland and Westmoreland? Have you climbed Snowdon, or Ben Nevis, or Helvellyn? No? Then you scarcely deserve to see Mont Blanc or the Alban Hills, or the blue waters of the Genevan Lake." To the lover of architecture, we would appeal to the long list of our cathedrals, and parish churches, and conventual remains, our castles, and halls, and manorial buildings, as furnishing more perfect examples of the gradual development of the art than can be found in any other country. To the geologist—what a noble field of research is open to the student who is content to go no further than the limits of the British Isles! Let him take up, for example, Phillips's "Yorkshire," and make it, as we have done, his travelling companion, and he will soon cease to dream of tufa or living sulphur, or the marble-quarries of Pentelicus, in the examination of the wonderful features of those scarred and rifted granitic regions to which a single day's railway-travelling will at any time bring him. Or does our weary young man of business need relaxation after his first half-year's close session on the tall office-stool? Let him put one of Mr. Gosse's sea-side books* into his portmanteau, and run down to the Devonshire coast; or, as our own fancy would prompt, run northward to the trout-streams and the mountain heather of Westmoreland and Cumberland—fly-rod and book, sketching-implements, and one or two needful volumes, with a strong plaid, strong shoes, and a stock of coarse worsted socks to match (linen and cloth clothes are always present in extravagant profusion), a pocket-compass, and a good map; these are all that he will need for a month's most excellent and entire enjoyment, in a country which, if he knows it not, we would recommend to him before the Rhine, having ourselves again and again returned to it with increasing zest and satisfaction. Or again, is not the naturalist and the botanist brought by an easy stage (happy man!) into a world of interest so absorbing, that he recks not of the fact that yonder spire on the horizon marks his village-home, or that yonder diffused atmosphere of distant smoke shrouds the manufacturing town, where he left the murky scene of his daily toil, by train, an hour ago?

O travel—boon most of all to the wearied pedagogue! thou canceller of bitter thoughts and disappointed calculations! most generous usurer of hard-won summer holidays!—how full art thou of bright associations to this dull February brain,—how big with July promises of freedom and of mountain air and—silence, which no petulant "quarter-bell" can vex or startle!

Or does our reader think that there are no associations in these islands which will bear comparison for interest with those of other lands? Oh, reader, fie upon thee! thou knowest not thine own heart, and the false films of fancy cloud thy clear eye,—learn "the art of seeing" as thou wouldst any other art, and thy own village will be tenfold dearer to thee; dip for half an hour into the pages of "Our Village," or of

* Mr. Kingsley's "Glaucus" is a delightful and alluring introduction to the works of the professed naturalist.

De Quincey's "Autobiographic Sketches,"* or "The Doctor," or of William Wordsworth, and thou shalt see—what thou shalt see!

Amongst particulars of preparation for travel, we ought to reckon, if possible, a facility in the handling of pencil and brush, and a definite opinion (the result of much experiment, and subject of course to correction) as to the readiest mode of rendering the scenes or objects of interest which the traveller may wish to record. There is a short-hand in sketching, which may serve as a sufficient remembrancer to ourselves; but it is a selfish proceeding, when a man has the time and the ability to make his notes in a language intelligible to his friends. The *desideratum* is the happy combination of form and colour which one sees in the rapid sketches of some true lovers of nature; but it takes much time even for an artist to acquire so much of fixed style (this does not imply mannerism) as shall enable him to render what he sees in tolerably plain characters, and most expeditiously, upon his paper or his canvass. As to the value of a well-stocked portfolio; as to the infinite pleasure there is in thereby recalling vivid impressions of happy scenes; as to the faculty of keen and imaginative observation which is acquired by the painter, we need to say—just nothing.

But one word we will say on the facilities which the returned traveller may command for the elucidation of his route to himself, and for the making it plain to others. Besides maps, and plans, and sketches, and those descriptions which consist in an amplification of the few telling words jotted down "on the spot," we venture to recommend a plan which we have before broached in these pages (vol. viii. p. 470). It is this (we quote our own words):—"You know how hard it is to make boys understand a map or plan on paper, involving as it does a necessarily imperfect representation of varying altitudes of land and water. With a view to meeting this difficulty, I have adopted the following plan, which, I need scarcely say, is not altogether original. I take a tray, and sprinkling it with sand, lay thereon a sheet of common window-glass for my sea level. I then heap up sand (of different degrees of fineness it might be), and mould at will, leaving the glass bare to represent water at sea or lake level, or inserting a bit of glass in the sand for water at a higher elevation. . . . Clay, though more permanent, and with other manifest advantages over sand, is dirty, and becomes hard, and is therefore virtually insufficient for the purpose; but a tray of sand might stand on the study-table in any house, and would be always at hand for the elucidation of plans, be the subject what it may—the bit of mountain and lake-country that we admired so much last summer, or the lie of the land about Sebastopol, or the battle of the Lake Thrasymene."

Visits to the Crystal Palace might be turned to good account with a view to projected travels. Careful study of the various models enables the student to become in a measure acquainted with some of the greater works of antiquity.

On the subject of diaries and note-books, listen to Lord Bacon:—"It

* "The very names of the ancient hills—Fairfield, Seat Sandal, Helvellyn, Blencathara, Glaramara; the names of the sequestered glens—such as Borrowdale, Martindale, Mardale, Wasdale, and Ennerdale; but, above all, the shy pastoral recesses . . . —these were so many local spells upon me, equally poetic and elevating with the Miltonic names of Valdarno and Vallombrosa."—Vol. i. p. 228.

is a strange thing, that in sea-voyages, where there is nothing to be seen but sky and sea, men should make diaries; but in land-travel, wherein so much is to be observed, for the most part they omit it, as if chance were fitter to be registered than observation: let diaries, therefore, be brought in use." But don't be anxious to write much. A few notes of things *really seen* by one "who does not come to see what can be said or thought about a place, but to see it," and of thoughts which arise naturally on the occasion of the new impression, will be worth pages of matter beaten out of the overtaxed brain. A few real nuggets brought home in the waistcoat-pocket will furnish us with the means of gilding to any extent the silver or baser metals which we have purchased or procured second-hand in the course of our travels. But still, "when a traveller returneth home, . . . in his discourse let him be rather advised in his answers, than forward to tell stories."—(Bacon.)

Above all things, let the traveller "who can see things for himself," beware of a hurried and remorseful habit; let him enjoy simply, and without rule, what he has time to see well, rather than suffer himself to be cheated of his satisfaction by an unseasonable disappointment, and by the ill-bred assumptions of others as to what is or what is not "the only thing worth seeing" in the district he has just been traversing. "There is no occasion for being excessively emulous, or haste-bitten in travelling, any more than in other occupations of life. Let no truly observant man feel the least envious or disconcerted, when he hears others talk familiarly of cities which are dream-land to him. . . . Many of these men never have seen, and never can see, anything as he can see it. The wise do not hurry without good reason."*

As to prescriptions on the subject of travel, it will be easy for the reader to gather many hints for himself out of books. We particularly recommend the perusal of Bacon's "Essay on Travel;" Mr. Helps's chapters (ix. and xi.) on the same subject in "Companions of my Solitude," a treatise full of that practical wisdom and of that philosophical spirit which the writer has so often contributed to the clearing up of men's misconceptions, and the enhancing of the unappreciated blessings of life; Eustace's "Classical Tour in Italy," as a specimen of a fine old scholarlike style, and as really valuable to the student; Burnet's "Letters, containing an account of what seemed most remarkable in *travelling* through Switzerland, Italy, some parts of Germany, &c., in the years 1685 and 1686;" Sir F. Palgrave's "Merchant and Friar."

These notices of books we do not attempt to multiply, only for the reason that they might be multiplied indefinitely.

Our object will have been attained, if we prevail upon any of our readers to take up the more vigorous study of modern languages, or to look upon travel with a more intelligent anticipation of its fruits. The present period of the year is one which might fairly be given to preparation of the kind we have been suggesting; and the times seem to promise a wider field for the tourist than the last two or three unhappy years have permitted. We trust that nothing may occur to mar these hopeful expectations, but that pending negotiations may issue in a general relaxation of those restrictions which have hitherto tended to discourage foreign travel. J. S. G.

* "Companions of my Solitude," chap. xi.

SCHOOL-TEACHERS AND COMMITTEE OF COUNCIL.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—It is very desirable that school-teachers should fully put forth any just objections they may have to the manner in which they are treated by the Committee of Council. I must say that this has generally been done in a way very little likely to impress that body effectually. I have been much struck by the ridiculous inconsistency of a speech lately made, at one of the winter meetings of Church School-teachers' Associations, by a teacher who shall be nameless: but here are extracts from the printed report of his oration in one of the educational papers. As this gentleman blows hot and cold, and abuses and praises the Committee of Council for the same thing, I beg of you to be good enough to print these extracts side by side, under the heads of "Pro" and "Con.;" they are taken verbatim from the same speech :—

Pro.

"The speaker proposed the next resolution—'That this meeting desires to express its gratitude to the Committee of Privy Council on Education, for their continued exertions for the promotion of education in this country, more especially for their efforts to raise the social position of elementary teachers.'....This committee had grown in importance, and was now one of the most powerful influences in this country, happily one of the most powerful for good.....No doubt the Committee of Council had done much to elevate the schoolmaster and education generally, and all praise be to them for it. It would not be very bad logic, to reason, that if they made the schoolmaster nothing, they would make the school nothing."

Con.

"There were two or three matters, however, that looked like grievances to the schoolmaster. It had been held to be a great hardship upon the teachers in this country that they were deprived of the opportunity of adding to their income by private teaching, which privilege was not denied to any other class of society. He trusted that the day would come when either a satisfactory reason would be shown for this restriction, or else that the Committee of Council would feel it their duty to rescind it altogether.....It was a notorious fact, that the Committee of Council had made the schoolmaster a complete nonentity. For what purpose this was done was best known to the Committee. While hoping for an alteration in this, he must say that the Church schoolmasters of England were exceedingly grateful to the Committee of Council for what they had done."

As the school-teachers, according to the speaker, have been subjected to "great hardship" in a matter of income, and have been made "complete nonentities" by the Committee of Council, in point, I suppose, of social position, the "exceeding gratitude" the teachers are said to feel towards them is of course to be taken ironically; and the rest of the praise must be similarly viewed, unless the speaker intended to present a spectacle of inconsistency of himself. In either case, such modes of acting on the Committee of Council are very unhappy ones, and likely to weaken the attention due to a proper and manly statement of their just complaints to the powers that be. I cannot think that such absurdities in our behalf are either made or published with an honest desire to befriend our profession, especially as, on this occasion, more than one of H.M.'s inspectors were present.

I feel more and more the necessity of a well-considered memorial, signed by all the associated teachers, setting forth plainly and fully, and in a manner such as shall at least command respect, all the chief

grievances we generally suffer from, and suggesting the means of remedy.

It is not to be expected that unanimity can be insured; we must go for great and admitted objects, and then be content with majorities in favour of them. Like all other professions, there are crotchety and wayward members among us, who must be allowed to run riot in their own way.—I am, Sir, your obedient Servant,

A PRACTICAL TEACHER.

LOCAL WORDS.

IN LONDON AND ITS NEIGHBOURHOOD.

Bob (*s.*), a shilling.
Boss (*a.*), squinting.
Brown (*s.*), a halfpenny.
Chivvy (*v.*), to chase.
Cove (*s.*), a fellow.
Fen (*v.*), to cease; "fen larks."
Funk (*s.*), a consternation.
Hide (*v.*), to beat.
Joey (*s.*), a fourpenny-piece.
Lark (*s.*), a spree, a game.
Mivvy (*s.*), a marble.
Patter (*v.*), to lecture, or preach respecting articles for sale, &c.
Shanky (*s.*), a shank-button.
Stow (*v.*), to cease.
Stunning (*a.*), extraordinarily good.
Swinny (*s.*), a brace-button.
Tanner (*s.*), a sixpence.
Play the wag, hop the charley (*v.*), to truant.

WEST RIDING OF YORKSHIRE.

Band (*s.*), string.
Brass (*s.*), money.
Brat (*s.*), a pinafore.
Castle-top (*s.*), a peg-top.
Clog (*s.*), a shoe with a thick wooden sole.
Corve (*s.*), a small waggon, used in coal-pits.
Corve (*s.*), a draught-plate in front of a fire-place.
Doffer (*s.*), one who takes off the bobbins from the frames used in spinning.
Drinkin' (*s.*), the meal called tea.
Flie (*v.*), to change one's abode.
Haver-bread (*s.*), flat oat-cake.
Hoile (*s.*), for hole; long *o* is usually pronounced like *oi*.
Hug (*v.*), to carry.
Lake (*v.*), to play.
Lug (*v.*), to pull the hair.
Middy (*s.*), a place for ashes, &c.
Nowt (*s.*), for naught, nothing.
Pale (*v.*), to beat.
Pawse, or *poise* (*v.*), to kick.
Sack-tettle-tenter (*s.*), a man employed in tending to the sack-tettle, or machine by which loads are raised from story to story.
Sam (*v.*), to pick up hastily.

HERTFORDSHIRE.

Frit (*a.*), frightened.
Hames (*s.*), part of a horse's harness.
Lissom, for lightsome (*a.*), nimble.
Rowing (*s.*), the second crop of grass in a season.
Slop (*s.*), a coarse round frock worn by labourers.

SUFFOLK.

Botty (*a.*), consequential, proud.
Chaits (*s.*), scraps left after a meal.
Haysel (*s.*), hay-harvest.
Runty (*a.*), ill-tempered.
Skep (*s.*), a measuring-basket.
Tumbril (*s.*), a large cart.

St. Mark's, Kemp Town, Brighton. E. STEVENS.

HINTS FOR MECHANICS' INSTITUTES.

"Instruction in grammar and reading: both are very important; for unless the pupils can both read with ease and get at the meaning of what they read without difficulty, it is in vain to hope they can make much use either of the reading-room or of the library. Nothing aids them more in doing this than analyzing short pieces of poetry—taking them to pieces, and getting at the grammar of them; then writing out in prose the sense in which they understand them, and committing them to memory.

"I observe you have no fewer than twenty-five classes in arithmetic, seventeen elementary, and eight advanced; the teaching of this subject is very often defective, and by rules only which the pupils seldom understand; but when well taught, it may be the means of good mental training; and it is quite a mistake to think that fractional and decimal arithmetic cannot be made as simple as the common rules in the hands of a good teacher.

"You have no class in geometry; this is a defect which ought to be supplied. I know of no school instruction which improves the reasoning faculties more than a book or two of Euclid, when thoroughly understood. It teaches the scholar, as also does Arithmetic, to get habits of accuracy —mathematical accuracy—and 'mathematical accuracy is intellectual truth;' and the mind becomes trained in distinguishing what is true from what is false. This instruction is also necessary, in order to understand the mensuration of surfaces and solids. I am sorry to see your mathematical class is not stronger; it is a very important class, and deserves much of your attention.

"Elementary drawing is important as a part of a good and sound practical education, and in which I see you are very successful. It is desirable that the youth of both sexes should acquire a knowledge of it, as they do of writing and arithmetic, not for the purpose of becoming artists, but for the more practical purposes of use in the affairs of common life. How much do some of the foreign towns owe of the beauty and richness of effect exhibited in so many of the articles they produce to their art-workmen, who have for long past been taught to draw and model.

"I have been greatly pleased in seeing the interest which boys take in free-hand drawing, by what passes under my own eyes in Hereford, where we have established an evening school for the artisan class. The master attends several of the town schools, once a week each, to instruct the children, who will thus be prepared for more advanced instruction in the evening classes when they leave. * * * * * *

"Your adult class is one of special interest, and is the one which mechanics' institutes had more particularly in view when first established, and which I see counts about seventy in number, varying from eighteen to forty years of age. In this class much useful instruction might be given, if well-informed members of the institute and unpaid teachers would occasionally read striking passages from books of travels, lives of celebrated men, particularly of such as attained their knowledge under difficulties—Watt, Franklin, and other great and good men. This would give rise to conversational lectures, and a system of mutual instruction would grow up; and many who have not the courage to attempt a lecture, would give much useful instruction in this way."—*Dean of Hereford's Huddersfield Lecture.*

A CHAPTER ON A B C.

THE Alphabet is generally held to be one of the simplest things in the world—simple even to a proverb; and yet a little reflection will suggest a variety of questions about it, some of which are more easily asked than answered. How many elementary sounds are requisite for the formation of language? What suggested the particular forms which are the symbols or visible representations of these sounds? Words are pictures;—are not letters still more pictures? if so, pictures of what? Who invented them? Why have some languages more than others? &c. &c.

It is to be regretted that these interesting questions should not be satisfactorily solved by a renewal of the process by which, according to Lord Monboddo's theory, the race of man emerged from a superior class of monkeys; it would be decidedly interesting to watch Jacko's first attempts to become one of the *μέροπες ἄνθρωποι*—still more to watch him, pencil in paw, attempting to fix on the signs which, either by natural force or by convention, would represent the articulate sounds; and then to observe how successive generations of monkeys would improve on the original invention, with due veneration for the Cadmus of their race. As, however, the Monboddo theory (*requiescat in pace!*) is not likely to help us out of our difficulties, we must fall back upon the materials within our reach, and, sinking questions of mere theory, examine the history and genealogy of the venerable A B C which has come down to us.

The inquiry, we would observe, is one not of mere curiosity, but of the highest practical importance; the value of the several letters forms one of the primary elements of the science of etymology; the interchanges of cognate sounds, and consequently of the symbols of those sounds, must be understood before the comparative analysis of languages can be effected with any good result.

The A B C which we use can be traced up to a most remote antiquity; we derive it, as every one knows, from the Latins; it was introduced into Italy, as also into Greece, by the Pelasgian race, who had brought it with them from their seats in western Asia, where it was used, in historical times, by the Hebrews and Phœnicians. The three Alphabets best known to us, viz. Hebrew, Greek, and Latin, are evidently of the same stock; but it would be wrong to assert that either is derived directly from the other. In regard to *form*, there is ground for belief that the present Hebrew Alphabet is comparatively of modern date, and that the Greek may approach nearer to the original type; in regard to the *number* and *order* of the letters, the Latin approaches nearer to the Hebrew than the Greek, and thus puts forth a *primâ facie* claim to be the more ancient of the two. But, again, rejecting the letters of reputed recent origin in each language, Hebrew contains the greatest number, and would, on that ground, weaken its claim to a superior antiquity. In our subsequent observations, therefore, it must be remembered that we do not attribute to either the parentage of the other, but that we treat them as branches of a still more ancient stock.

The most salient points of comparison between the Alphabets are the number, the names, the form, the value, and the interchanges of the

various letters. Let the Alphabets be placed in parallel columns, as below, and reference be made to them in illustration of our remarks :—

א	Aleph	A	Alpha	A	ע	Ayin	O	Omicron	O
ב	Beth	B	Beta	B	פ	Pe	Π	Pi	P
ג	Gimel	Γ	Gamma	C	צ	Tsadi			
ד	Daleth	Δ	Delta	D	ק	Koph		(Koppa)	Q
ה	He	E	Epsilon	E	ר	Resh	P	Ro	R
ו	Vau		(F Digamma)	F (V)	ש	Sin		(Sampi)	S
ז	Zain	Z	Zeta	G	שׂ	Shin	Σ	Sigma	
ח	Kheth	H	Eta	H	ת	Tau	T	Tau	T
ט	Teth	Θ	Theta				Υ	Upsilon	U
י	Yod	I	Iota	I			Φ	Phi	
כ	Caph	K	Kappa	K			X	Chi	X
ל	Lamed	Λ	Lambda	L					Y
מ	Mem	M	Mu	M			Ψ	Psi	
נ	Nun	N	Nu	N			Ω	Omega	
ס	Samech	Ξ	Xi						Z

1. *Number.*—Hebrew possesses twenty-two letters; Greek, in its latest stages, twenty-four; Latin twenty-one; and our own language twenty-six. It is, indeed, commonly asserted in grammars and dictionaries that Latin has twenty-three; but the use of J and V as distinct from I and U is a modern innovation, of which the Romans themselves had no cognizance.

The numbers mentioned represent the Alphabets respectively in their most amplified forms. According to ancient tradition, the Greek contained only sixteen letters, which were the original Cadmeian or Phœnician Alphabet. Of these sixteen, one, viz. *Vau* or *Digamma*, was afterwards rejected; and to the remaining fifteen there were added, first the vowel Υ; then Z, H, Θ, of which H was originally an aspirate; then Φ and X; and, lastly, about the period of the Persian war, Ξ, Ψ, and Ω, attributed to the poet Simonides; at which period also H was transformed from an aspirate into a vowel.

While there is historical evidence in favour of some of these assertions, we have reason to believe that it does not represent the whole truth. In the first place, it is evident that not only *Vau*, but *Koppa*, formed a member of the ancient Greek Alphabet: in *name* it corresponds exactly with the Hebrew *Koph*, in *form* with the Latin Q, while in *position* it occupied a place between Π and P, as is proved by its numerical power, *ninety*. It was used instead of K by the Corinthians, and by some of their Sicilian colonies, and was finally dropped as superfluous. There is another numerical sign which, without doubt, once occupied a place in the Greek Alphabet,—*Sampi* or *San*. With regard to this, Herodotus tells us (i. 139) that it was used by the Dorians instead of *Sigma*; it may have been true, that neither Ionians nor Dorians used the two forms together; but this does not prove that the letters were originally the same. In *name*, *San* seems to correspond with the Hebrew *Sin*; and as *Sin* and *Shin* were different pronuncia-

tions of the same letter, they might have been represented by *San* and *Sigma* in Greek, until one was ejected as superfluous. In *form*, *San* is not unlike the Phœnician *Sin*; in numerical power, however, it does not correspond with it, occupying a position after *Omega*, to represent 900; in which place it must be allowed to be highly convenient, enabling the Greeks to complete their numerical notation.

Adding, then, *Vau* or *Digamma* (whose numerical power, *six*, establishes its correspondence with the Hebrew letter of the same name) and *Koppa*, the original Greek Alphabet must have consisted, at all events, of seventeen letters; and, consequently, if these letters had been retained, the full Alphabet would have amounted to twenty-six.

With regard to the letters said to have been added to the original Alphabet, there can be little doubt that the five concluding ones are modern, and that both the Greek and Latin (as we shall presently show) terminated, just as the Hebrew does, with T. Thus the form *Omega* was generally represented by *Omicron* down to about 400 B.C., though there are evidences of its earlier use; Ψ *Psi* was written ΠΣ or ΦΣ; Χ *Chi* = ΚΗ; and Φ *Phi* = ΠΗ; the two last probably owing their introduction to the change made in the force of the letter H, which, from being an aspirate, became a vowel; lastly, Υ *Upsilon* is another form of the Hebrew *Ayin*, and was used interchangeably with *Omicron* by the Æolians, as ὕρνις, ὕμοιος, &c., for ὄρνις, ὅμοιος; while in old Attic writing we find the diphthong *ου* represented by a simple *ο*, as ἐκ Σάμο for ἐκ Σάμου. Its name, *U-psilon*, indicates its connection with the old *Vau* or *Digamma*, originally Υ, as *Digamma* was the sign of simple aspiration; when a specific vowel-sound was attached to it, it was designated *Vau* or *U psilon*, i. e. *unaspirated*. This explanation may appear unsatisfactory from the double connection attributed to Υ with the Hebrew *Ayin* and *Vau*; but each of these appears to have been used as the *fulcrum* of the vowel-sound accompanying them; and we may therefore well conceive that a similar connection existed between *Digamma* and *Upsilon*.

Rejecting, then, the five last letters, and inserting the two antiquated forms, the number of letters in the Greek Alphabet amounts to twenty-one, or very nearly the number of the Hebrew Alphabet; and thus a *primâ facie* probability is established that the letters H, Z, and Ξ were not modern innovations, as Plutarch and Pliny asserted, but had their prototypes in Hebrew. With respect to H, it corresponds in form, in original force, and very nearly in position, with the Hebrew *He*, and the idea of its modern origin is attributable probably to the change in its use from a mere aspirate to a vowel-sound. There can be no question as to the identity of Z and the Hebrew *Zain*. The origin of Ξ no doubt presents difficulties; but we can easily conceive that it was supposed to be modern from the circumstance that, *as pronounced in later times*, it might be equally well rendered by ΧΣ: does it, however, follow that Ξ had originally the sound of an English X? We think it highly probable that it had not; its agreement with *Samech* in position, and the probable difference that once existed between the sounds of *Samech* and *Sin*, suggest that Ξ may have been a simple sibilant, and Σ an aspirated sibilant; and, in confirmation of this probability, it is worthy of notice that in old Greek the sound of our X was represented not by ΚΣ, but by ΧΣ, implying the existence of an aspirate in Σ, just as at one period

the regular pronunciation of *Sin* appears to have been aspirated (cf. Judges xii. 6).

We have thus established the identity of the Greek and Hebrew Alphabets in respect of the number of their letters, *Tsadi* excepted; let us turn to the Latin. We have already noticed that of the twenty-three commonly attributed to it, two, viz. J and U, had no existence as distinct from I and V; the innovation is unfortunate, as destroying the analogy in the sound of many cognate words in Latin and English; and it is, moreover, inconsistent, as we see no reason why, if J and U be added, W should not also be added, inasmuch as the Latin V doubtless had the sound of W as well as of U and V. Striking out, then, these two as innovations of English editors or English printers, we have twenty-one letters in the Latin Alphabet; but of these twenty-one, Z* may be ejected, as only appearing in foreign words; Y was introduced at a very late period to represent the soft sound of the Greek *Upsilon;* X, again, was a Greek importation; while V—partly a vowel, partly a consonant—represents certain uses of the Æolian *Digamma*, and must be deemed, conjointly with F, the representative of the Hebrew *Vau.* We do not, indeed, assert that V is a modern introduction into the Roman Alphabet, but we think that it has suffered a displacement, and that it should not be regarded as an original member in the place it now holds.

Excluding, then, these four, the Roman Alphabet is reduced to nineteen letters: it falls short of Hebrew in three instances—*Teth*, *Samech*, and *Tsadi;* and short of Greek in two, *Theta* and *Xi.* The question indeed arises, whether X ought not, equally with V, to be considered as displaced, from the gap which we perceive between N and O. We think not; in *form* and *position* it is so clearly identified with the Greek *Chi*, that there is strong *primâ facie* evidence of their identity; added to which, we believe that its original power was the same, as is proved by the insertion of an S after it in old inscriptions to represent Ξ. It has also been asserted that K is not a Latin letter: this, however, is erroneous; it is true that it fell into desuetude, but this resulted from the changes which took place in the sound of C, which was made equivalent to the hard sound of K, its own soft sound being transferred (as we shall afterwards show) to G, the representative of *Zeta* and *Zain.*

And now to come to our own A B C; that it is derived from the Latin, requires no proof; it differs from it in the addition of J, U, and W, to represent certain uses of I and V. Whether our present sound of J truly represents the sound of the Latin I in the words in which we have substituted it, is indeed doubtful; in many instances it would have been better represented by a Y; still, the question of sound is distinct from that of the parentage of the letter. As to the identity of our three letters U, V, and W with the Latin V, there can be no doubt, and probably the three sounds coexisted in the single Latin letter.

---

* That Y and Z were not deemed Latin letters by the Romans themselves, appears from a fact mentioned by Suetonius: the Emperor Augustus occasionally wrote in cipher; his system was to substitute for the proper letter the one following it, and so instead of X we are told that he used A, proving that the Alphabet was then supposed to end at X.

Thus, of the twenty-six letters of the English Alphabet, all are traceable to Latin, and, through Latin, to the Eastern languages. We may mention, in conclusion, that of our present letters, the Anglo-Saxon Alphabet is deficient in J, Q, and V, but possesses one corresponding to the Greek *Theta*, which has fallen into disuse. W. L. B.

(*To be continued.*)

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—As I am trespassing upon your valuable space elsewhere, I must be more brief in my reply to your intelligent correspondent than I should otherwise have been.

First, then, I must state, what M. E. C. does not seem to estimate duly, viz., that these papers are *essentially disciplinal* in their character, and that the case of the boy who has just left school for the active business of life is widely different, on the one hand, from that of children; on the other, from that of people of matured intellect; or, again, from that of the same youth with unlimited time at his command.

It is not my desire to discourage *breadth* of study, but I see *depth* so often sacrificed to superficial extent, that I lay the greater stress upon what I conceive to be the only means of remedying the evil, in the case of the class in question.

There could be no possible reason why the student should not take up Chemistry, or even another subject, along with History, but I observe that M. E. C. makes some abatement of her claims upon the young student in speaking of such study as a *relief*.

In conclusion, I would venture to refer to other of my papers, besides that under discussion, for the full proportions of my scheme. A perusal of some of these (that, *e. gr.*, on Science) would, I think, show, that whilst contending for a certain principle of study, I am not disposed to be content with an insufficient basis or ultimate range of subject-matter.

—I am, Sir, yours faithfully, J. S. G.

Walthamstow, Feb. 19*th*, 1856.

WHAT ARE THE BEST POPULAR SCHOOLS.—"Popular schools are mainly intended to direct the *education of the people;* and therefore the best are not those whose pupils can merely repeat the Catechism most readily, read the most fluently, write the easiest hand, or cast up simple accounts with the least hesitation; they are those where mind and heart have, besides, been formed with the greatest care, where the religious and moral sentiments are best cultivated, and the judgment the most thoroughly exercised; those where, with order and obedience, you discern, habitually prevailing, a desire after the beautiful and honourable, the love of cleanliness, the presence of serenity and good will, and where, at the same time, the children learn what they will in future most require to know. Schools, indeed, may exist, at which children learn perfectly to read, write, and cipher, to speak the language of their country with accuracy, and to reply glibly enough to interrogations regarding religion and positive or formal morality; but where it may nevertheless be impossible to say that children are well brought up or even rightly instructed, because their judgments have not been formed, or those lofty faculties cultivated which are essential to true men and good citizens."—*Willm, from Papers on Popular Education.*

REASONS FOR INFERIORITY OF EDUCATION IN ENGLAND.

TRAVELLERS in the United States, and inquirers on the Continent of Europe, have arrayed an imposing account of education, which certainly distances our own; and that praiseworthy and energetic nobleman, Lord Stanley, has recently shown, in his lectures on the subject, that, in respect of public libraries, England stands at the bottom of a list of nine book-reading nations. But useful as are all these facts to stimulate our home efforts and arouse our educational energies, teachers and promoters of teaching may well plead that many of these more intellectual foreign peoples have had from the earliest times facilities and habits quite as genial to mental culture, as those of our own populace have been untoward to its growth. However admirable the doughty vigour and enduring industry of our Saxon folk, it can scarcely be questioned that they are slow of apprehension, and that, so far from uniformly desiring education for their children, it is but of late that they have begun to value it; while numbers still prefer the smallest money-gain to the sacrifice of sufficient time to give their children a chance of adequate instruction.

Now, in addition to these adversities to the teacher of the English, there is also in my judgment an equally formidable historical one. It is the fact that the antecedents of this English poor of ours were those of a conquered people kept for centuries in serfdom by their conquerors; and even after mediæval vassalage had passed away, and the brass collars had been broken from off the necks of the Gurths and Wambas, and the far more degrading servilities of Saxon slavery to Norman power had vanished under the blessed influences of reformed religion and growing civilization, there remained—ay! and there linger still—those ineffaceable chasms which have for ages disastrously distanced the ignorant and the dependent from the enlightened and the ruling classes, and have so long chilled the intercourse and benumbed the sympathies that should unite in brotherhood (as one great Christian fraternity) those who need enlightenment, and those to whom God has committed the keeping of the seeds of knowledge. Do not mistake me, and so misconstrue my meaning as to think that I advocate the breaking down of the great landmarks of society, or the levelling of one tittle of its just and necessary distinctions. I have no such wish. But I have lived among some of the older nations of continental Europe, where I have seen family prestige and the distinctive privileges of lineage upholden even more tenaciously than in England; and never have I elsewhere witnessed the same alien spirit or class antagonism, especially between the labourer and his employer, as have so often riven asunder and deadened social sympathies in England. Some centuries after the Norman Conquest, whilst the schoolmen of the thronged and ancient Universities of Paris, Bologna, Padua, Naples, Salamanca, Orleans, Prague, and Leipsic, were pouring forth educated men, who returned to their homes to disseminate among their fellow-countrymen (who spoke one language, and were one people) the seedful fruits of their own learning, our Anglo-Saxon peasantry toiled unheeded for the masters who, instead of promoting the instruction of the humbler classes, till late years, to their indelible disgrace, did their utmost to prevent it. And they know

but little of the hereditary characteristics of race, who think that social and mental inferiority, thus engendered, and continued from generation to generation, can be rapidly or easily dispelled.

The superiority of the means of education, and the general spread of intelligence among the artisan classes of continental Europe in the middle ages, were greatly owing to the transit through it of the commerce of the East; and still more so to the system of Wanderschaft, or the migration of apprentices from place to place, associating, wherever they went, with their superiors in age, station, and experience, and deriving (though so poor that they begged their way from town to town, as indeed they still do) all the advantages which travel gives to the richer classes, in the expansion and information of the mind.

The magnificent public galleries, and great and ample libraries which were and are spread so profusely over every civilized European country (save our own), were freely open to these men; and there is little wonder, that while our peasants were serfs, and our artisans mechanics of the roughest order, the working classes abroad were filling the old world with those beautiful monuments of art which are still models of unparalleled excellence and beauty, and will perish as such only with time itself.*

Permit me now to name the great degree in which all these obstacles and disadvantages to the education of the English poor have been aggravated by the fact that, until comparatively modern times, the educated classes spoke one language, and the poorer classes another; that it was a cherished distinction, a pitiable, but not the less an admitted, badge of gentility to speak in a tongue which the people could not understand; and I regret to be compelled to say, that we are nowise free from the relics of this bilingual evil at the present day; for it needs but to question peasants or a class of poor children closely, and one by one, as to the meaning of many of the commonest words bequeathed to us by our Norman ancestors, to find that they have no conception of them; and yet such words are used daily and weekly by the instructors of the poor alike in school and pulpit!

Now, whilst all these gigantic adversities were holding fast the English people in the hoodwinks and bondage of ignorance during many centuries of this millennium, how different was the fate of the Gallic, Teutonic, and

* Many other causes contributed to the superior intelligence of the people of central Europe over the Anglo-Saxons. The Crusades far more effectually fostered kingly power and abated the rude ascendancy of the feudal Barons there than here; developing the growth of those popular energies, which the monarch, piercing through the intermediate orders of society, enlisted and enlarged. The Crusades also exercised a far more direct effect on commerce, manufactures, and the spirit of adventure, both in Southern and in Northern Europe; opening a very fruitful relation between its enterprise and the riches of the Oriental world, as the rapid rise of nearly every mercantile city of the continent from the Baltic to the Mediterranean amply testifies. Add to this the far earlier decline of predial servitude under the emancipating influences of that social and civic power which attained maturity and vigour in the towns and boroughs of the continent long before urban communities of similar importance arose in England. Nor can we overlook the wars of the Roses, the struggles of antagonistic churches, the battles of the Commonwealth, or the feuds bequeathed by the dynasty of the Stuarts, which for so long a time afflicted the English people with those terrible hindrances to progress especially incidental to civil war, within the narrow boundaries which hem in and exasperate the long, lingering animosities of insular strife.

even of the Southern nations. Whilst with us knowledge was the privilege of the priest, with them, at least comparatively speaking, it was the inheritance of the poor. Whilst our piebald and shifting language embarrassed learning, the vast centre and north of Europe enjoyed the pure masculine and expressive Germanic languages. The Southern nations, though somewhat less stably and with dialectic distinctions, spoke the equally general Romance language, derived from the Latin; and even the less-civilized tribes, who now people Bohemia and the Russian empire, held undisturbed possession of the Slavonian language.

Since the subsidence of the great Gothic wave, each country on the continent has had its vernacular tongue continued to this hour; and it would not be difficult to prove a remote existence (by means of the great writers alike in Germany, France, Italy, and Spain) of the very languages still in use. But he would be a bold man who should take upon him to stand up and date the origin of English. Historical books, which mostly use chronology as if it were the life-blood of history, are accustomed to cling to Chaucer, and call him the father of English literature. He may have been so; but considering that he lived in the fifteenth century, it has in that case but modern parentage, and Mr. Bell, the annotator of the last edition of his poems, expresses a judicious suggestion, namely, that to modernize his orthography, is a necessary expedient to render Chaucer intelligible to the general reader. A comparison of the great monumental works of English literature, beginning with the metrical chronicle of Robert the Monk of Gloucester, and tracing them through the successive eras marked by Chaucer and Shakspeare, Bacon, Spencer, Brown, Milton, and de Foe, Burke and Junius, William Cobbett, Macaulay's Essays, Tennyson's Poems, and the "Times" Newspaper, will, I think, vindicate these remarks on the shifting character and phases of the English tongue.

As regards the United States, I have simply to remark that they were chiefly peopled by educated classes, whose general intelligence has been and is annually aided by immigration from the Irish, whose natural capacities infinitely surpass those of the Anglo-Saxon race; and also by large bodies of emigrants from England, who are rarely from among the ignorant poor. Nor has education there had to contend with aristocratic aversion to its free dissemination among the lower orders of the people. It has, on the contrary, had every possible furtherance alike from national interests, social example, and the direct and uniform aid of the institutions of the Republic.—*From Mr. Symons's "Address on Aspect of Education."* (*Printed by the Boys at the Painswick National School.*)

THOROUGHLY GOOD EDUCATION OF THE PEOPLE A GREAT SAVING.—"I assert it as my most deliberate conviction, a conviction growing clearer and stronger every hour of my life, that, putting it on the lowest ground of a pecuniary speculation or investment, the country would save millions of money, ay, as many millions as would yearly pay the interest of the national debt, if it were to provide for the thorough education of the people, both male and female. * * * * * It is easy at any time to provide the machinery for intellectual improvement; it is a question simply of time and money. To amend the moral habits of a people is something very different."—*Lecture on Female Education, by Rev. Dr. Booth.*

but little of the hereditary characteristics of race, who think that social and mental inferiority, thus engendered, and continued from generation to generation, can be rapidly or easily dispelled.

The superiority of the means of education, and the general spread of intelligence among the artisan classes of continental Europe in the middle ages, were greatly owing to the transit through it of the commerce of the East; and still more so to the system of Wanderschaft, or the migration of apprentices from place to place, associating, wherever they went, with their superiors in age, station, and experience, and deriving (though so poor that they begged their way from town to town, as indeed they still do) all the advantages which travel gives to the richer classes, in the expansion and information of the mind.

The magnificent public galleries, and great and ample libraries which were and are spread so profusely over every civilized European country (save our own), were freely open to these men; and there is little wonder, that while our peasants were serfs, and our artisans mechanics of the roughest order, the working classes abroad were filling the old world with those beautiful monuments of art which are still models of unparalleled excellence and beauty, and will perish as such only with time itself.*

Permit me now to name the great degree in which all these obstacles and disadvantages to the education of the English poor have been aggravated by the fact that, until comparatively modern times, the educated classes spoke one language, and the poorer classes another; that it was a cherished distinction, a pitiable, but not the less an admitted, badge of gentility to speak in a tongue which the people could not understand; and I regret to be compelled to say, that we are nowise free from the relics of this bilingual evil at the present day; for it needs but to question peasants or a class of poor children closely, and one by one, as to the meaning of many of the commonest words bequeathed to us by our Norman ancestors, to find that they have no conception of them; and yet such words are used daily and weekly by the instructors of the poor alike in school and pulpit!

Now, whilst all these gigantic adversities were holding fast the English people in the hoodwinks and bondage of ignorance during many centuries of this millennium, how different was the fate of the Gallic, Teutonic, and

* Many other causes contributed to the superior intelligence of the people of central Europe over the Anglo-Saxons. The Crusades far more effectually fostered kingly power and abated the rude ascendancy of the feudal Barons there than here; developing the growth of those popular energies, which the monarch, piercing through the intermediate orders of society, enlisted and enlarged. The Crusades also exercised a far more direct effect on commerce, manufactures, and the spirit of adventure, both in Southern and in Northern Europe; opening a very fruitful relation between its enterprise and the riches of the Oriental world, as the rapid rise of nearly every mercantile city of the continent from the Baltic to the Mediterranean amply testifies. Add to this the far earlier decline of predial servitude under the emancipating influences of that social and civic power which attained maturity and vigour in the towns and boroughs of the continent long before urban communities of similar importance arose in England. Nor can we overlook the wars of the Roses, the struggles of antagonistic churches, the battles of the Commonwealth, or the feuds bequeathed by the dynasty of the Stuarts, which for so long a time afflicted the English people with those terrible hindrances to progress especially incidental to civil war, within the narrow boundaries which hem in and exasperate the long, lingering animosities of insular strife.

even of the Southern nations. Whilst with us knowledge was the privilege of the priest, with them, at least comparatively speaking, it was the inheritance of the poor. Whilst our piebald and shifting language embarrassed learning, the vast centre and north of Europe enjoyed the pure masculine and expressive Germanic languages. The Southern nations, though somewhat less stably and with dialectic distinctions, spoke the equally general Romance language, derived from the Latin; and even the less-civilized tribes, who now people Bohemia and the Russian empire, held undisturbed possession of the Slavonian language.

Since the subsidence of the great Gothic wave, each country on the continent has had its vernacular tongue continued to this hour; and it would not be difficult to prove a remote existence (by means of the great writers alike in Germany, France, Italy, and Spain) of the very languages still in use. But he would be a bold man who should take upon him to stand up and date the origin of English. Historical books, which mostly use chronology as if it were the life-blood of history, are accustomed to cling to Chaucer, and call him the father of English literature. He may have been so; but considering that he lived in the fifteenth century, it has in that case but modern parentage, and Mr. Bell, the annotator of the last edition of his poems, expresses a judicious suggestion, namely, that to modernize his orthography, is a necessary expedient to render Chaucer intelligible to the general reader. A comparison of the great monumental works of English literature, beginning with the metrical chronicle of Robert the Monk of Gloucester, and tracing them through the successive eras marked by Chaucer and Shakspeare, Bacon, Spencer, Brown, Milton, and de Foe, Burke and Junius, William Cobbett, Macaulay's Essays, Tennyson's Poems, and the "Times" Newspaper, will, I think, vindicate these remarks on the shifting character and phases of the English tongue.

As regards the United States, I have simply to remark that they were chiefly peopled by educated classes, whose general intelligence has been and is annually aided by immigration from the Irish, whose natural capacities infinitely surpass those of the Anglo-Saxon race; and also by large bodies of emigrants from England, who are rarely from among the ignorant poor. Nor has education there had to contend with aristocratic aversion to its free dissemination among the lower orders of the people. It has, on the contrary, had every possible furtherance alike from national interests, social example, and the direct and uniform aid of the institutions of the Republic.—*From Mr. Symons's "Address on Aspect of Education."* (*Printed by the Boys at the Painswick National School.*)

THOROUGHLY GOOD EDUCATION OF THE PEOPLE A GREAT SAVING.—"I assert it as my most deliberate conviction, a conviction growing clearer and stronger every hour of my life, that, putting it on the lowest ground of a pecuniary speculation or investment, the country would save millions of money, ay, as many millions as would yearly pay the interest of the national debt, if it were to provide for the thorough education of the people, both male and female. * * * * * It is easy at any time to provide the machinery for intellectual improvement; it is a question simply of time and money. To amend the moral habits of a people is something very different."—*Lecture on Female Education, by Rev. Dr. Booth.*

METHOD OF TEACHING SINGING IN ELEMENTARY SCHOOLS.

THE great drawback to the progress of musical instruction in our schools at present seems to be the want of sufficient attention on the part of teachers to the principles which ought to guide such instruction. There are so many different methods offered for their adoption, and they have so little power of judging between them, that they frequently try first one and then another, and end by teaching on no method at all.

This is in great measure to be attributed to defective instruction at the Normal Colleges. To judge by the questions which are set to the students of these institutions by the Committee of Council at the Christmas examinations, a great deal of time appears to be expended in teaching the students the theory of musical composition, for which they will probably never have any use as teachers of elementary schools, while there is nothing to show that their attention is specially directed to the mode in which the subject should be taught in elementary schools, which is the one important thing for them to know. In this particular subject, the Normal Colleges appear to forget their excellent rule of making their instruction in some measure the type of what the instruction of the elementary school should be.

A diversity of methods for teaching singing prevails in France as well as in England at the present time, and we agree with a French writer in regarding this diversity as a sign of weakness rather than as a sign of strength. It exhibits uncertainty as to the *principles* on which a method of teaching the subject should be based. It is no doubt very charitable and courteous on the part of the promoters of the various methods to speak of one another as fellow-workers in the same cause, who are taking different paths to the same goal. But a teacher knows that it is of vital importance what path he takes: that one path may be very circuitous, and cause a great loss of time and labour; that another may stop short before reaching the goal, and, as people say, lead nowhere; and that there will assuredly be some one track, marked out by nature and improved by art, and well trodden by successive generations of men, which will bring him most speedily and comfortably to the point in view.

In order that teachers may be able to discriminate between the relative merits of the various methods which are proposed, it is necessary that they should have a clear and definite perception of the general principles on which a method of teaching singing ought to be based. We propose, therefore, to enter into an investigation of those principles, in this and the next article.

GENERAL PRINCIPLES OF A METHOD OF TEACHING SINGING.

I. A first or elementary course of instruction should limit itself to the Major Scales.

The reasons for this are as follows:—

1. The minor mode is not practically required by children. Music written in this mode is generally of a mournful and melancholy character, and is therefore unsuited to the joyous and jubilant feelings

of youth; this fact is recognised in all collections of children's music, from which tunes in the minor mode are carefully excluded.

2. The subject of the minor scale is one of the most doubtful and difficult portions of the science of music. Mr. Spencer has shown conclusively, in his very able rudimentary treatise on music, that there are at least nine normal or model forms of the minor scale, and therefore one hundred and thirty-five minor scales in all. Even taking the minor scale as usually given in books of instruction, we have to teach two different forms, one for ascending, and the other for descending; and this difference, both as a matter of theory and as a matter of practice, is always perplexing to beginners.

For these reasons, the minor scale should be deferred to a more advanced course of instruction. Perhaps it will be said that the pupils of an elementary school are not likely to have an opportunity of attending such a course, and that, if they do not learn the minor scale while they are in the elementary school, they will not learn it at all. We reply that this only shows the want of gradation among our schools. We cannot expect to teach the whole range of any subject in an elementary school; and it is important that we should understand what portion of a subject is within the province of such a school, and what portion may properly be considered beyond its province; for it is in consequence of attempting too much at the outset that we frequently end by accomplishing nothing at all. If we attempt only the major mode in the elementary course, we shall have a fair chance of succeeding within this range; but, if we attempt both the major and the minor mode, we shall probably succeed in neither. Any reasonable elementary teacher will have enough to do in teaching the theory and practice of the major scales. The pupils may not receive a second course of lessons. But the elementary school will have done its duty by building a good solid basework, which will always be useful, and will admit of being carried higher at any future time.

II. The common character of the Major Scales should be recognised by a common nomenclature.

We have in the musical scales a beautiful example of what Leigh Hunt calls the principle of variety in unity. The scales have a character of unity in this respect, that they are all formed by the same ratios of sound, they are all developments of the same type or model. They have a character of variety arising from the different absolute pitch or elevation of the sounds on which these ratios are built up.

Now, to represent these scales in their variety, a different set of names is necessary for each; but to represent them in their unity, the same set of names will do for all.

We distinguish different scales from one another by calling their sounds by different series of letters, and we name each scale after its initial sound; thus, the scale of A, the scale of B, &c. In order to represent the scales in their common character, as all springing from the same ratios, or, in other words, to represent a normal or model diatonic major scale, the names most generally adopted are the first eight numerals. Thus, then, the series of letters C, D, E, F, G, A, B, C, will denote a particular scale, beginning on an absolute sound, which we always call C; while the series of numerals 1, 2, 3, 4, 5, 6, 7, 8, will denote the normal or model scale, and will be applicable alike to all.

It was to serve the same purpose in practice which the numerals serve in theory, that the syllables *do, re, mi, fa, sol, la, si, do,* were in the first instance employed. The application of these syllables to the notes of the gamut was considered at the time a very great invention and a method of singing in itself; and, together with a reformation of the ancient scale, it has gained for its inventor a permanent place in the temple of fame.

A contemporary ecclesiastical historian, in relating the event, tells us that in the pontificate of Benedict VIII., Guido Aretinus, a monk, and an excellent musician, to the admiration of all invented a method of teaching music, so that a boy in a few months might learn what no man, though of great ingenuity, could, before that, attain in several years.

We must bear in mind that the scale to which the syllables were first applied consisted of only six notes. These were the first six of our present scale, which was formed from Guido's hexachord by the addition of the seventh and the octave subsequently by the French. This being understood, let us bring before our readers some of the remarks which are made by the greatest of musical historians in elucidation of the significance of this invention.

"The view of Guido in this contrivance" (says Sir John Hawkins) "was to impress upon the minds of learners an idea of the powers of the several sounds as they stood related to the first sound in the hexachord; for he saw that, from an habitual application of the syllables to their respective notes, it must follow that the former would become a common measure for the five intervals included within the limits of the hexachord, and that, in a short time, the idea of association between the syllables and the notes would become so strong, as to make it almost impossible to misapply them.

* * * * * * * * *

"The result of the invention was clearly this, that, in a regular succession of six sounds in their natural order, beginning from G, from C, or from F, taking in B b, the progression with respect to the tones and semitone in each was precisely the same: and supposing the learner to have acquired by constant practice a habit of expressing with his voice the interval G C, which is an exact fourth, by the syllables U T F A, the two sounds proper to the interval G C would become a kind of tune, which he must necessarily apply to U T F A, wherever those syllables should occur; and in what other situation they occur, the above constitution of the different hexachords shows; for, as in the hexachord from G to C, the syllables U T F A express the fourth G C, so in that from C to A do they express the fourth C F, and in the hexachord from F to D, the fourth F Bb.

* * * * * * * * *

"The intervals thus adjusted in the several hexachords became alike commensurable in each by the syllables; and U T M I would as truly express the ditone (third) C E, or F A, as G B, to which they were originally adapted. The same may be said of every other interval in each of the hexachords."

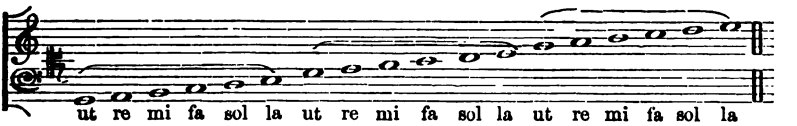
All this applies with far greater force to our present scales of eight sounds than it did to the hexachords.

The hexachords in their several octaves only made up the following register of sounds represented in our present notation (Fig. 1).

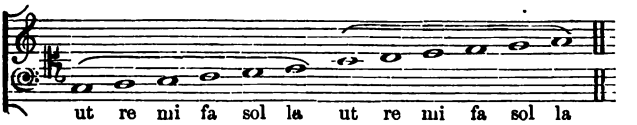
FIG. 1.—REGISTER OF GUIDO.

These sounds were distributed in hexachords as in the annexed diagram (Fig. 2).

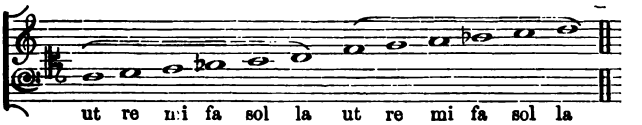
FIG. 2.—1. HEXACHORD OF G, OR DURUM HEXACHORD.



2. HEXACHORD OF C, OR NATURAL HEXACHORD.



3. HEXACHORD OF F, OR MOLLE HEXACHORD.



Thus Guido's register comprised twenty-two sounds, and these were distributed in three scales. Our present vocal register comprises fifty-two sounds, and we have thirteen scales. Guido's entire register embraced only the sounds of two of our present scales (C and F).

If, then, the adoption of a common set of names was a facility to learners at the time of Guido, how much greater a facility must it be to learners at the present day. Each of Guido's hexachords would contain fifteen intervals, and his pupils would have to master in all forty-five intervals. Each of our scales contains twenty-eight intervals, and our pupils have to master 28 × 13, or 364 intervals. Guido, by teaching his forty-five intervals as repetitions of fifteen, reduced the work of his pupils to one-third of what it would otherwise have been. We, by teaching 364 intervals as repetitions of 28, reduce the work of our pupils to *one-thirteenth* of what it would be. On this plan, the pupil by learning one scale learns all; and if he is properly taught, one scale becomes as easy to him as another. He has a common measure for all the scales; and only let him know where to lay on his measure, to what sounds to apply the syllables, and he is equally at home, whatever the signature may be.

And not only does this device lessen his labour, but it brings the scales before his mind in their true scientific relation. Though he may not understand the scientific explanation of the common character of the scales, he sees that they have this character. The common series of syllables represents the same fact to him practically, that the common series of ratios represents theoretically to the scientific musician. Thus the plan is founded on scientific truth, and, while it facilitates the practice, also prepares the learner for the scientific explanation.

From these considerations, it would appear that Guido's was indeed a great invention, and that the award of history has in his case been a just one. His invention is certainly the greatest that has ever been made in relation to the teaching of vocal music. Any method of instruction which adopts this fundamental principle will have in it a scientific unity which will carry it over all obstacles, internal and external; while a method which does not proceed upon this principle is devoid of scientific unity, is devoid of method, and, whatever may be its excellence of detail, will assuredly fail of accomplishing its general object,—teaching people to sing at sight.

We insist upon this principle, not only because we consider it to be the vital point in teaching music, but because, strange to say, we of the present generation, living eight centuries after the date of this important invention, have lived to see the Governments of France and England, in a praiseworthy endeavour to spread a knowledge of singing among the people of their respective countries, give the sanction of their "authority" to a method which ignores the invention. In both cases, the method (itself originally German and imported from Rhenish Prussia) was introduced in the face of a prevalent national method based upon the correct principle. Not only does the method in question forego all the aid to be derived from the adoption of Guido's plan, but it commits the absurdity and mockery of using his syllables as fixed names for the sounds of one scale only, and that not even the one corresponding to the hexachord to which the inventor originally applied them. On this subject, that learned and "cunning" musician, General Thompson, remarks, in his unique little treatise on his Enharmonic Organ:*—"There is no more striking evidence that knowledge does sometimes retrograde, than that the *sol-fa* of the scientific monk should have degenerated, in the hands of modern musicians, into a nomenclature for fixed sounds. It is as if the x y z of algebra were found serving as digits in keeping accounts."

According to this method, the pupil has to learn each of the thirteen scales as a distinct department of music, and each presents to his mind a different degree of difficulty in proportion to the number of sharps or flats in its signature. The so-called natural scale, which is free from these artificial incumbrances, is comparatively easy; the scale of one sharp is difficult; the scale of two sharps is very difficult; the scale of three sharps very difficult indeed; four sharps insuperable: and similarly with the flat scales. The consequence is, that, although the pupil learns the natural scale very thoroughly, he seldom gets much further.

This is the whole mystery of movable *do* and fixed *do*, which, for the last quarter of a century, has divided the teachers of singing, first in

* We much regret that this work is out of print.

France and then in England, and which, in our opinion, has tended much to retard the progress of musical education among the people of both countries. Every elementary teacher who would teach vocal music in his school must decide the question for himself and choose his method accordingly.

General Thompson recommends that the numerals should be employed instead of the *sol-fa* syllables. His remarks are as follows :—" A conclusion pointed to by the practice of the enharmonic instrument is the desirableness of returning to something like the original system of *solfaing*, or what in French is called *solfier par transposition*, where *do* is always applied to the key-note. But, instead of the syllables *do, re, mi*, &c., it would be simpler and better in every way to sing the words *one, two, three*, &c., as directed by Mr. W. E. Hickson in his 'Singing Master.' If it is objected that these are of more difficult articulation,—unless poetry is to be divorced from music, and we are to be entertained with *solfeggi* and *gorgheggi* instead, the necessity for practising articulation is a good and not an evil."

We think it is very certain that teachers will find it easier, in the first stages of the instruction, to teach their pupils to read the different scales by means of the numerals, because the application of these involves only a single act of thought, while the application of the syllables involves a twofold act. In singing by the numerals, the pupils have merely to count the number of degrees at which the note stands from the given key-note, and this at once gives them the appropriate numeral; but in singing by the syllables, they have first to find the degree of the note, and then to apply the syllable corresponding to that degree. But we should advise teachers, as soon as they have rendered their pupils expert in the application of the numerals, to avail themselves of the *sol-fa* syllables, which have several advantages over the numerals, irrespectively of the question of articulation; among which we may particularize the following :—

1. So soon as the pupils begin to beat time, the numerals are required for counting the beats in a bar, and it would obviously be confusing to them to have to use these words for two distinct purposes at the same time.

2. The numerals, denoting mere numerical sequence, are liable to be applied to *any* succession of sounds; for instance, Mr. Hickson counts forwards in descending as well as in ascending the scale.

3. The numerals, being of general application, are not sufficiently distinctive as *names* for the sounds of the scale.

4. The syllables furnish an excellent means of hitting the semitones, which is the most essential thing in singing a piece of music. One principal reason why Guido adopted the six original syllables for the notes of his hexachords seems to have been, that he "observed a dissimilarity between the closeness of the syllable *mi* and the broad, open sound of *fa*, which he thought could not fail to impress upon the mind a lasting idea of their congruity;" and a similar fitness may be observed in the syllables *si* and *do*.

[In the celebrated Pestalozzian singing method of Nägeli and Pfeiffer, the numerals were employed as recommended by General Thompson; but in the professed improvement on it, which the Rev. W. J. Unwin has recently edited, the syllables are adopted in preference.] J. T.

Notes of New Books.

Aristotle's Ethics, with English Notes. By W. E. Jelf, B.D., late Student of Christ Church, Oxford. Pp. 470. London and Oxford: J. H. & J. Parker.

Although it may be true that, in the words of the thoughtful author of "Oxford Studies,"* "the popular conception of philosophical principles must ever remain περιττὰ καὶ θαυμαστὰ, καὶ χαλεπὰ, καὶ δαιμόνια, ἀχρηστὰ δέ," yet, perhaps, one cause of this may be found in the indifference which pioneers have too often shown in clearing away difficulties and incumbrances from the way of science. Editions of the best-known philosophical treatises of Aristotle have till lately multiplied, without commensurate increase of light being shed upon their subjects by a careful and accurate grammatical examination of the text; books and tutors alike furnishing every requisite for a due appreciation of the Stagirite, save only the *sine quâ non* of minute and critical scholarship. Thanks to the learned labours of Mr. Jelf, this will no longer be a hinderance to the study of the Ethics. The edition before us presents a thorough examination into the philosophical tenets of his author, with no stint of illustration of one passage by another, or of this particular treatise by other works of Aristotle: but what will be hailed with most satisfaction, is the exact and scholarly explanation of sentence after sentence, which must render this volume no inconsiderable boon to future students of the Ethics. Let any one compare Mr. Jelf's edition with the in many respects valuable work of Mr. Brewer, or with the accepted English translation by a well-known Oxford tutor, and this will be readily apparent. On approaching a difficulty, in lieu of unsatisfactory silence, or a too general rendering, always liable to mislead, this edition affords every reasonable aid to the student towards the grammatical comprehension of his author's words. To dilate on this feature may seem needless, when the very high repute of Mr. Jelf's Greek Grammar would in itself be a sufficient guarantee for his thoroughly editing any Greek author to whom he might put his hand: but we are the more disposed to notice it, because it is not evidenced by obtrusive display of collateral scholarship, but always in strict subservience to the better understanding of Aristotle's language. Thus, in Book vii. c. 1, at note (5), 2, εἰ καθάπερ φασίν, κ. τ. λ., Mr. Jelf's grammatical acuteness leads him to suggest that the use of the *indicative* γίνονται, and not the conditional, may indicate that the passage expresses Aristotle's *own opinion:* a nice point, on which other editors are silent. Again, in c. 2 of the same book, note (16), 2, ὅτι γάρ οὐκ οἴεταί γε, where Michelet has unaccountably blundered in translating οὐκ οἴεται "non opinione distrahitur," Mr. Jelf at once supplies the proper ellipse, δεῖν πράττειν, as also at c. 3, (35), 3. In page 156, (8), 3, we have this short note, "Σεῖος, Lac. for θεῖος;" where a book-maker would probably have drawn from his common-places the parallel use of τῷ σιῷ σύματος in Thucyd. v. 77; of σάλλει for θάλλει elsewhere, and have referred to a curious section

* Oxford Studies: in Oxford Essays, 1855, p. 282.

(§ 473) in Donaldson's New Cratylus. But where philology may elucidate the precise meaning of Aristotle's words (*e. g.*, εὐδαιμονία, I. iv. (51), 2; δεινότης, vi. note (136), 9; and a remark at τὸ ἀγαθὸν respecting the fact that the comparative of 'good' is irregular in almost all languages,—see X. iii. (16), 2), we never fail to derive from Mr. Jelf's notes apt illustration from kindred words in other tongues, involving kindred notions.

A careful perusal of the Ethics with this work will realize, we feel sure, Mr. Jelf's modest wish "to guide students to an understanding of what Aristotle says." No philosophical difficulty (*e. g.*, Book vii. note (60), 5) is left unsolved, or at least not manfully grappled with: no opportunity lost of illustrating up and down his book the three points among others, to which his preface (p. x.) calls attention; viz., Aristotle's use, and opinion of induction (*e. g.*, p. 157, (3), 5); his way of speaking of the gods (see X. viii. (79), 7); and the reverential way in which he mentions his instructor Plato (cf. Notes, p. 11 (80), 1). This last point receives additional confirmation, we may observe, from Aristotle's language in his Politics, ii. 6, p. 64, in a passage which Mr. Congreve translates —"All the dialogues of Plato are characterized with brilliancy and grace, originality and profound inquiry."

One word, and that of praise, is due to the good taste, sound judgment, and practical consideration for the wants of students evinced in the getting up of this volume. The duodecimo text (of Bekker), printed on an octavo page, so as to leave ample margin for note or comment, a liberal supply of blank leaves *of good paper*, whereupon the reader may draw out his own analysis after a model given on a sample page, and a clear broad type in the portion of the volume given up to notes, are luxuries for the scholar, which must be seen to be appreciated. May this work, which deserves to rank with Liddell and Scott's Lexicon, Linwood's Lexicon to Æschylus, and the editor's own Greek Grammar, among the most creditable productions of ripe and good Oxford scholars, find that wide favour which must needs follow its diligent perusal.

The First Step in Chemistry. By R. Galloway, F.C.S. Second edition. Pp. 302. London: Churchill.

The author of this manual complains, and with some justice, that the elementary works on the science of chemistry do not begin at the beginning, and, consequently, do not follow up the various stages in their natural and proper order. Chemistry should be taught as arithmetic; the notation should be studied first of all; the power of the elements, as of single figures, should next be understood; then the effects of the combination of the elements, analogous to the processes of multiplication, division, &c.; then the combinations of these compound substances; and so on to the most complex problems of the science. The counter process of decomposition and the effects of the various modifying agents, such as heat, cohesion, elasticity, light, and electricity, would form the last stage in the course of instruction.

This is the plan pursued by Mr. Galloway, and the arrangement of the subject is one of the distinctive features of his book. But, besides this, he lays great stress on instruction by working examples: to lay

down rules simply would utterly fail as a method of teaching chemistry, just as much as it would fail in arithmetic; there would be considerable difficulty in impressing these rules in the memory, and, when impressed, there would be a still greater difficulty in realizing them. The exercises in this book are most abundant, and constitute its second recommendation.

We may add that the book is written in a pleasing and readable style, and that there is much that bears upon those interesting topics of the day which involve chemical knowledge; such as agriculture, photography, food, &c. On the whole, we think it a very excellent work, and we recommend it to the notice of our readers.

Short View of the Whole Scripture History. By Isaac Watts, D.D. New edition. Pp. 301. London: Routledge, 1855.

This is anything but a "short view" of the Old Testament history, occupying 214 pages; and it gives the merest and driest abstract of the New Testament history, knocked off in 85. It tells infinitely more about Hyrcanus than St. John; and about the garments, altars, lamps, and incense of the Jewish priestcraft than about the essential doctrines of salvation. It is a book quite out of date, and is in perfect keeping with the anxious perplexity of the reverend author "about the shape and form of a cherub," solemnly declaring that "he has *taken no small pains to inquire into this matter;*" adding, "that *yet* he cannot arrive at any satisfaction or certainty as to what was the true figure of those cherubs which were placed on the ark"! Observing a Sunday-school class (of adults) eagerly debating some moot point, in a Calvinistic Methodist Chapel in Wales, we asked what was the point in debate; the answer was, "Which was the angel who appeared to Balaam?" We thought this a somewhat useless inquiry; but Dr. Watts beats the Welsh theologians. *Dulce est desipere in loco;* but we must question the judgment of thus inverting the relative importance of scriptural truths, and so presenting them in 1856 to our babes and sucklings, especially in that worst of all forms—the Catechetical.

French Language Simplified. By L. Nottelle, B.A. Pp. 280. London: Simpkin & Marshall, 1856.

We cannot easily imagine the disappointment any one must experience who purchases this book with a view to acquiring a good pronunciation of the French language. We give a few specimens to show that the above is no undue criticism. 'Facteur' is to be pronounced 'fact-err;' 'la pelouse' as 'lap-loose;' 'les Zouaves' as 'lays-*who*-have;' 'Aix la Chapelle' as 'S-la-Shah-pell.' In the more advanced stages of this novel process, we have some amusing specimens. It would somewhat puzzle a good French scholar to guess the sentence intended to be represented by 'no sir lame;' he would make several trials we think before he hit upon *nos sœurs l'aiment!* Those portions of the work which consist of themes for exercises are good and useful, and the plan adopted of exemplifying idiom, grammar, and construction is judicious and sensible.

School Atlas of Modern Geography: a Series of Thirty-seven Maps. By W. Hughes, F.R.G.S., and John Bartholomew. Edinburgh: Adam & C. Black.

This is, without exception, one of the best atlases we ever saw. It fully sustains Mr. Hughes's high character for accurate knowledge and careful delineation. The too great prominence often given to mountain-ranges has been avoided, which adds greatly to the beauty of the maps; physical features are nevertheless well preserved. The names of places are not injudiciously crowded, and are amply copious. Where names differ widely, as Cologne, Cöln, Vienna, in English and the local language, both are given. The index of places, with their geographical position, is admirably full and accurate. We commend this atlas strongly.

The American Journal of Education. Vol. I. Nos. 1 and 2. Second Edition. 8vo. Pp. 232.

This is a work which richly deserves a world-wide circulation. We have already borrowed from its pages a most masterly analysis of our language, which will enable our readers to judge of the eminent ability which, we can assure them, pervades its contents. We shall have occasionally to refer to its opinions as those of standard educational authorities. It is throughout written in the calm, simple language of thoughtful scholarship, embued with the highest sentiments which adorn our nature and enrich mental gifts.

On the Arrangement, Construction, and Fittings of School-houses. By Robert S. Burn, Engineer. 4to. Pp. 27. Edinburgh: W. Blackwood.

This is an admirable work, full of practical details, with simple and scientific plans for all parts of schoolrooms. Those relating to ventilation appear to be perfect; and the work is well illustrated and beautifully executed. The only part which we are disposed to criticise is the large grouping of too many desks on a level floor. We prefer raised parallel desks in three rows.

A History of Greece. By T. S. Carr, M.A. Third edition. Pp. 700. London: Simpkin & Marshall.

This is the third edition of a successful book. It is what the author calls it,—"A compendious history of Greece," and "a narrative drawn from authentic sources, and exhibiting, within a narrow compass, not only the results but the modes of argument adopted in more voluminous histories." It is fairly entitled to praise as a useful manual of facts and dates, admirably attested throughout by indisputable references; but any one who wishes for the philosophy of history may look for it in vain in these pages. We sadly want the same service performed for Greek and Roman history, and also that of modern peoples, which Mr. White has so ably performed for the history of England in his "Landmarks." We desire short treatises which shall give us the spirit of the times, the philosophy, literature, and social habits of each great epoch, not indeed

with the tedious prolixity of some popular historians, but so as to impress general life-like pictures on the minds of youthful readers. And if this cannot be done without sacrificing a knowledge of the number of triremes which accompanied Demosthenes and Eurymedon, or how many Argives joined the Athenian army at Tanagra, we confess that we do not believe that a single rational parent in the kingdom would condemn the omission. There are in this history before us a mass of facts which no one wants any one to remember, and the utter oblivion of which would be no sort of loss to any portion of mankind. If these very dry facts are not intended to be remembered, why are they to be read? And if they need not be read, why are they not only written, but re-written *ad infinitum?* There is positive mischief in it; for nothing can more surely tend to nauseate minds which should be allured by history, its beauties and its uses, and not repelled by its abuses. One might as well feed a young carpenter on sawdust, by way of giving him a taste for timber.

Lessons in General Knowledge. By R. J. Mann, M.D., F.R.A.S. London: Longmans.

A good elementary reading-book has long been a *desideratum;* and by a *good* one, we mean one that will not only serve as an instrument for teaching the mechanical process of reading, but will also furnish the mind with food adapted for it. Dr. Mann presents us with one which possesses many of the essentials of a good reading-book: he endeavours to combine instruction in reading with instruction in matters of general knowledge, or rather of physical science. The subjects of his lessons are such as the following:—Movement of the Earth, Balloons, the Esquimaux, Volcanoes, Vegetable Life, Deserts, Mungo Park, the Eye, Sound, &c. &c.

These subjects are arranged in a certain natural order. The ordinary phenomena of the world, such as its movements, winds, and rain, are first described: then the peculiarities, which are exhibited in certain districts only, are illustrated; as, for instance, snow-mountains, volcanoes, rivers, and seas. The general characteristics of the different regions of the earth's surface are described: the connection between the vegetable and animal kingdoms in the great economy of the universe follows: and thence the subjects ascend to the higher ranks of animal life; and, finally, to man in his intellectual and moral pre-eminence, and in the highest proofs of that pre-eminence in the discoveries of astronomy and in the construction of machinery. Biographical sketches are interspersed, with the view of exciting the interest and ambition of the youthful mind.

These lessons are designed for pupils of the age of seven years and upwards: each lesson is prefaced with a glossary of any difficult or technical terms, the derivations being also given: illustrations are thrown in to elucidate philosophical subjects: in short, no pains have been spared to make the work adequate to its proposed object. As an elementary reading-book, therefore, we deem this one of the best we have seen: and the only caution we have to give in the use of it is, that the pupil should not be confined to it, but that some other reading-books, containing poetry and narrative, should be studied at the same time.

Dictionary of Greek and Roman Geography. Edited by W. Smith, LL.D. Parts XIII. and XIV. London: Walton & Maberly; Murray.

This admirable work is now approaching its completion; the fourteenth number brings us down to P; and we observe in a foot-note that the editor anticipates having the whole out in the course of the present year. It is superfluous to express a favourable opinion on a work so well known to every scholar; suffice it to say, that its excellence flags not as it proceeds, and that it will be a worthy companion of the dictionaries that have preceded it.

LITTLE BOOKS.

First German Book for Beginners. By the Rev. Albert Wintzer. Pp. 196. (London: Longmans, 1856.)

A very easy stepping-stone to German Grammar, and by which the diligent young student may, without the aid of any other book, pick up a fair insight to the idiom of the language, and begin to construe; but as to thus learning how to pronounce it—oh, no! We must not minister to such a delusion; that can be taught only orally, and learnt only by the young.

Readings for the Thoughtful. By the Rev. H. Hubert, M.A. Pp. 78. (London: Longmans, 1856.)

The author of this work states in his preface, that "Few attempts are made to expound the spiritual lessons which we should endeavour to learn from the remarkable occurrences of these eventful days;" and he has endeavoured to supply that deficiency, by taking "for his text, as it were, the circumstances of some interesting modern event, and thence to deduce important lessons of practical Christianity."

We think Mr. Hubert has succeeded well in his aim. The subjects of his readings are as follow:—The three scourges, *i. e.*, Cholera, Potatoe Disease, and the War; "False Security," "The Fallen Tent," "Cast Down, but not Destroyed," "Adulteration of Food," "The Capture of Sebastopol." We hardly know which is the best of these subjects. Mr. Hubert introduces the present war into almost all of them, and some of his reflections will doubtless lead many a careless reader to look more into his own heart and ways of life. "The Adulteration of Food" is particularly well written, and we hope and trust, that many who have availed themselves of this practice may see the mischievous effects produced, and for the future cease to risk the lives of their fellow-creatures for the sake of benefiting their own pockets.

L'Abeille. (Brussels: par Th. Brauw. London: G. Bell.) *L'Abeille* is an able educational journal, published in Belgium, and having as its sphere the discussion of all subjects connected with primary schools. A summary of the contents of the 11th Number, published January 1st, in the present year, will give our readers an idea of its general character. It commences with a summary of the proceedings of the department of public instruction for the year 1855, the appointment of officers, and the expenditure. A review of the work of M. Rendu, *Sur l'Education Populaire dans d'Allemagne du Nord*, and an original article on "Religion in the School," follow. Then some short papers on Method, an "Object Lesson," and "Hints on Questioning." Then a lesson on "Geometry," designed for a class in a middle school,—the subject being the "Measurement of the Area of Plain Figures." A piece of music, correspondence, and varieties, complete the number.

The Educator, No. 8. (London: Ward & Co.) *The Educator* is the quarterly journal of the Congregational Board of Education. The present number contains a "Sketch of the Life of Becker, the Grammarian;" a paper on the "Influence of our Popular Education on the Manners of the People," extracted from the Educational Expositor; "Hints on Method;" and a letter on "Education in the United States." The last contains some apposite remarks on the subject, the writer being unfavourable to the American system of common schools.

Self-Education. By E. C. Whitehurst. Pp. 14. (London: Cousins.) This is the substance of a Lecture delivered at the Cadogan Institute, Chelsea, addressed to the "Early Closing Association." The author recommends the young men, of whom his

audience consisted, to commence their studies with Abercrombie's "Inquiry into the Intellectual Powers," "Locke on the Conduct of the Human Understanding," and Dugald Stewart's "Elements of the Philosophy of the Human Mind;" and then to proceed on to Logic. Whether such books as these are likely to whet the appetite of young shopmen, our readers will judge for themselves; we think that such abstruse, though able essays, as a commencement, might repel some who are ambitious of entering on a course of self-education.

SERIALS RECEIVED.

Fraser's Magazine; American Journal of Education; Lardner's Handbook of Natural Philosophy—Optics; Museum of Science and Art; Old Jarvis's Will; Wanted a Wife.

Document.

EXTRACT FROM THE PRESIDENT'S ADDRESS AT THE UNITED SCHOOLMASTERS' ASSOCIATION.

(*Concluded.*)

"WHAT the artisans had performed successfully on a limited scale, he proposed to employ in the advancement of universal science. Thus, Bacon's philosophy was *borrowed from the workshop;* and what he did for science, we may now do for education; we must *borrow from the workshop,* by adopting in our schools, more or less, those processes of reasoning, habits of thought, and peculiar modes of self-instruction, employed by our practical men.

"If the great intellect of Bacon could condescend to borrow from the workshop, why should we be ashamed of borrowing from the same source? But yet so it is. Talk to some of our professional men,—it may be our lawyers, or our clergymen,—about borrowing ideas, and taking hints from the working man, they would smile at you with contempt, and say, 'Can men who have had a college education obtain any information from persons of the lowly class, whose education has been altogether neglected?" Ay, neglected, to be sure; neglected so far as the schools in which these men had been put in their childhood are considered; but those workmen, when they left the schools, had to commence a course of self-education, and that self-education has had its results; that self-education makes the English workman what he is,—the pride of his country, the most skilful artisan of the world.

"Notwithstanding all that has been done for primary education within the last twenty years, we are still very far from having realized the Baconian condition of utility and progress.

"We are still under the dominion of abstract theories of education, consecrated by great names, and sanctioned and patronized by great societies. That philosophy is false, and not less hateful than it is false, which arrests the progress of knowledge by extinguishing the spirit of inquiry and destroying freedom of thought and action. The Platonic philosophy enslaved the human mind for 2,000 years, and during that long period it produced no fruit, because it superseded inductive processes of inquiry by laying down theoretic dogmas and sublime philosophic fictions. Bacon emancipated the human mind from this degrading and enfeebling slavery. He showed mankind that the inductive method would lead them to new truths, far exceeding in brilliancy and utility anything which the ancient gods of philosophy, whom the people had blindly worshipped, had ever discovered. I need not tell you, *ladies* and gentlemen—for I am happy to be able to add another substantive to my address—how wonderfully this prediction has been fulfilled. Thus our Platonic theories of education must one day fall before the inductive method of inquiry.

"In moral questions, there is, perhaps, no such thing as absolute certainty. A question in education cannot be answered in the same manner as a problem in geometry. Moral evidence has little in common with mathematical evidence; and the inductive method of research is in many respects widely different from the analytic method, by which we demonstrate abstract truths. In the inductive sciences, such as education, we seem only to approximate to truth. We can hardly ever say that we have actually arrived at the absolute truth; but we approach nearer and nearer to it, according as we extend our inductive processes. The truth lies in the asymptote of a curve towards which we are always approaching, but which

we may never absolutely reach. At the same time, our approximations have always the stamp of utility, for they are practically true; that is, they are true as far as the actual wants of society are concerned. The inductive method never puts a stop to further inquiry; it is itself progressive, and recognises the principle of progress. It gives no divine revelation; on the contrary, it appeals to reason, and challenges further inquiry. Watt concluded, from his experiments, that the sum of the latent and sensible heat of steam was a constant quantity; this, although not found by subsequent experimentalists to be strictly true, was nevertheless a grand approximation to truth, which conducted him to those magnificent inventions which have changed the destinies of the world. The same spirit should be adopted in relation to the development of our methods of education.

"The inductive method has already done something for the progress of education, but its importance is not yet sufficiently acknowledged or understood. We are still the slaves of conventional forms and prescriptive theories; we are still too much overawed and cowed into servility by high-sounding names, and by the dogmas of self-serving professions and ambitious societies. The progress which we have made should be taken as the guarantee of further advancement. The positions we have gained must form the base of operations for still greater achievements.

"When I was a boy, geography was taught by rote; now it is taught much more efficiently by means of maps. Arithmetic was imperfectly taught by rules; now it is admirably taught by an exposition of principles. But there are still many important branches of knowledge very imperfectly taught by the rule and rote system. We must not abandon the hope of future *progress*. With respect to *utility*, there is much which remains to be accomplished.

"Let us enter an elementary school in one of our manufacturing cities. The master still teaches on the old individual system. There is no black-board, or any kind of experimental apparatus. There are maps, it is true, hanging on the walls; but they seem to have been little used, for they are covered with dust. The school is not noisy, but there is the constant chatter and titter of idleness and frolic. There is discipline of a certain kind, but it is not moral discipline. The boys are sons of mechanics and factory-labourers, and, like their parents, they will have to enter the workshop or the factory. They are sharp, intelligent-looking boys, and seem capable of learning anything which the schoolmaster might attempt to teach them, or of taking advantage of his occasional fits of listlessness and abstraction; but they are idle, and feel no interest in their tasks. The dull routine of reading, writing, and arithmetic, with catechisms and creeds, goes on day after day. The school is characterized neither by utility nor progress. The master sits at his desk apparently in a deep 'brown study:' let us look over his shoulder, and see what he is doing. He is studying the ancient geometry, and on one side of his desk are some books of the ancient classical authors. He is a scholar and a mathematician. What a misdirection of intellect! What fruit has his knowledge yielded him? or what advantage has it been to the pupils of his school? It has been a negation; or, rather, it has been worse than a negation. These boys want to be taught in matters relating to the employments which they will soon have to follow. The master is idle, as a teacher, because the boys will not attend to his abstract prelections; and the boys are idle, because the master will not instruct them in those things which form the subjects of their every-day associations. The school-house is surrounded by engines, by factories, by chemical works, and by workshops of all sorts. What a mine of intellectual wealth lies at his very door available for school instruction! How useful he might become. He might fill these factories of industry with a far more intelligent and skilful class of operatives, and thereby not only advance the interests of the operatives themselves, but contribute to the productive resources of his country. Hark! the steam-whistle! He starts as a man aroused from his slumber. Does that sound awaken some useful trains of association? The steam-engine, with its huge train of passengers and merchandise, starts on its winged course. It goes onward and onward, and woe betide the thing that obstructs its progress. It rolls from hamlet to hamlet, and from city to city, carrying with it the products of industry and intelligence. Type of the age of progress! has the shrill blast of thy whistle reminded the schoolmaster that utility and progress are realities demanding his consideration, and claiming the tribute of his powers? Poor dreamer! have you really returned to your problems? Are you content to remain stationary, whilst everything around you reminds you that utility and progress are the motive principles of the age; and that beings such as you, with all your classical lore, must be swept away as the surf of the ocean before the advancing tide of civilization!"

Intelligence.

NATIONAL EDUCATION.—Lord John Russell moved the following resolutions on the 6th ult. in Parliament, in the course of a very able and well-received speech :—

"1. That, in the opinion of this House, it is expedient to extend, revise, and consolidate the minutes of the Committee of Privy Council on Education.

"2. That it is expedient to add to the present inspectors of Church Schools eighty sub-inspectors, and to divide England and Wales into eighty divisions for the purposes of education.

"3. That it is expedient to appoint sub-inspectors of British, Wesleyan, and other Protestant Schools not connected with the Church, and also of Roman Catholic Schools, according to the present proportions of inspectors of such schools to the inspectors of Church Schools.

"4. That, on the report of the inspectors and sub-inspectors, the Committee of Privy Council should have power to form in each division school districts, consisting of single or united parishes, or parts of parishes.

"5. That the sub-inspectors of schools of each division should be instructed to report on the available means for the education of the poor in each school district.

"6. That, for the purpose of extending such means, it is expedient that the powers at present possessed by the Commissioners of Charitable Trusts be enlarged, and that the funds, now useless or injurious to the public, be applied to the education of the middle and poorer classes of the community.

"7. That it is expedient, that in any school district where the means of education arising from endowment, subscription, grants, and school-pence shall be found deficient, and shall be declared to be so by the Committee of Privy Council for Education, the ratepayers should have the power of taxing themselves for the erection and maintenance of a school or schools.

"8. That after the 1st of January, 1858, when any school district shall have been declared to be deficient in adequate means for the education of the poor, the quarter-sessions of the peace for the county, city, or borough, should have power to impose a school-rate.

"9. That where a school-rate is imposed, a school committee, elected by the rate-payers, should appoint the schoolmasters and mistresses, and make regulations for the management of the schools.

"10. That in every school supported in whole or in part by rates, a portion of the Holy Scriptures should be read daily in the school, and such other provision should be made for religious instruction as the school committee may think fit; but that no child should be compelled to receive any religious instruction or attend any religious worship to which his or her parents or guardians shall, on conscientious grounds, object.

"11. That employers of children and young persons between nine and fifteen years of age should be required to furnish certificates, half-yearly, of the attendance of such children and young persons at school, and to pay for such instruction.

"12. That it is expedient that every encouragement should be given by prizes, by diminution of school-fees, by libraries, by evening schools, and other methods, to the instruction of young persons between twelve and fifteen years of age."

An interesting conversation then arose. Mr. Henley, with much concurrence and some criticism, thought Lord John had attempted too much. Lord Robert Grosvenor, Mr. E. Denison, Mr. Biggs, and Mr. Alcock expressed a general concurrence. Mr. Adderley put forward some very decided views, and showed a strong leaning towards local rating for the support of education. Sir John Pakington entirely agreed in the principle that we ought to go as far as we can with the present system, and urged the House to lay aside all party politics in considering measures of this kind. Mr. Roebuck and Mr. Gibson put in a word for secular education; the former giving a definition of religious instruction which deists might adopt. Mr. Hadfield and Mr. Miall

protested against all State interference. Lord Palmerston, highly complimenting Lord John Russell, made a brief speech, in which he laid great stress on the necessity of making such changes in the character of the education imparted as will conduce to the teaching of useful things.

After a short reply from Lord John Russell, the formal motion on the first resolution was withdrawn, and it was resolved, that "on Thursday the 10th April the House will resolve itself into a Committee of the whole House to consider the present state of public education in England and Wales."

Lord John's scheme for local rates may at some future day be requisite; but we should first try the experiment of an adaptation of the present grants to the necessities of poor places, and of the instruction given to the needs of the class to be instructed. Until we have given this fair trial to voluntary effort, is it wise to lay what ought to be a national burden merely on ratepayers, and to encounter the risk of a general war of sects in the selection of the denomination which is to control each school?

UNITED ASSOCIATION OF SCHOOLMASTERS.—Ordinary General Meeting March 1st, 1856. Mr. F. R. Crampton in the chair. A paper was read by Mr. E. Simpson on "The Schoolmaster's relations with the Government."

1. *Augmentation.*—The lecturer was of opinion that in many cases the generous intentions of the Committee of Council were thwarted by the low salaries which are offered to teachers—managers taking into consideration the Government gratuities. He suggested that the remedy would be for the Government to raise the minimum salary required for certified teachers.

2. *Pupil-Teachers.*—The lecturer assumed that the stipends of male pupil-teachers were too low to obtain desirable candidates in towns and places where juvenile labour is in demand. He also considered the fee for instruction of pupil-teachers insufficient for the great additional labour their training involves.

3. *Inspectorships.*—Mr. Simpson expressed the hope that the day was not distant when they would be thrown open to the ambition of the profession.

4. *Superannuation.*—On this point, the lecturer urged that the supineness of teachers had led to delay in a matter of great importance.

The thanks of the meeting were given to Mr. Simpson for his very interesting and able paper; after which an animated discussion took place on the subject of the lecture.

The general opinion of the meeting was, that the Committee of Council on Education are really desirous of doing everything that they can for the good of the schoolmaster; and although certain regulations might appear arbitrary and unnecessary, still there been and are reasons which show the wisdom of such checks as had been adopted. ie minutes of 1846 were extolled as establishing a religious educational scheme, h embraced all parties, and in which the bitterest opponent can find few faults, these resulting not from the principles of the measures, but from their working rdly in some exceptional cases.

Regarding proportionate payment for instruction to apprentices, it was generally admitted that the mobility of the scholastic body, especially the certified portion, had created an absolute necessity for the rule.

The award of certificates was acknowledged to have the entire confidence of the meeting, but objection was made to writing on the parchment the measure of a man's abilities in the subjects of examination.

The meeting were of opinion that the lecturer had reasoned from a few exceptions with regard to salaries being reduced because of the certificate augmentation; the tendency was shown to be in the contrary direction.

It was generally allowed, that it is not so desirable to increase the stipend for apprentices, as it is to make the profession so respectable that parents shall be willing to forego present advantages in consideration of prospective benefits.

The meeting agreed that the office of Inspector of Schools should be thrown open to the laity generally, although it was admitted that in the initiation of the minutes

of 1846 none could have performed the work so acceptably to the parochial clergy as men selected from that body.

On the subject of pensions and superannuations, it was argued that any movement for these objects must result in a present loss of salary, and that the most independent way is for schoolmasters to make provision for themselves in such offices as they may approve. W. H. SMITH, *Minuting Secretary.*

The next meeting of the Association will be held on the 5th Instant, when Mr. Murby will read a paper on the Method of Teaching Singing.

A VERY able and interesting Report from the Commissioners for Civil Service Examinations has been just issued, which we shall review next month.

Notices.

Orders and Advertisements must be sent only to MESSRS. GROOMBRIDGE, 5, *Paternoster Row; the latter, from strangers, must be accompanied by a remittance, according to the following scale:—If under* 40 *words,* 4*s.*; *for every additional ten words,* 6*d.*; *a whole page,* £2. 2*s.*; *a half-page, or one column,* £1. 5*s.* *No deductions are made.*

The JOURNAL *will be sent, free of postage, for one year on receipt of* 6*s.* 6*d.*, *in advance.*

*** *This Journal is now Registered for Transmission to Foreign Countries, if Stamped.*

TO CORRESPONDENTS.

Some Articles and Notes of Books stand over till next Month.

We again beg Advertisers *not* to address their letters to the "Editor," but to the *Publishers.*

DISCIPLINA REDIVIVA—No. 12.

SOME REMARKS ON THE CULTIVATION OF TASTE.

WE are not unaware of the difficulties which must attend even a superficial review of the subject before us. It is one involving deep philosophical considerations, whilst there are scarcely any limits to the variety and multitude of the topics which it embraces. To omit all mention of taste, however, in a series of papers devoted to the main features of a liberal education, would be to shut our eyes to the influence of beauty upon the human mind, or at least to confess ourselves unable to estimate its legitimate weight. Our design is not to give anything like a *rationale* of the subject, or to enter upon a systematic discussion of its several parts. We cannot even hope to put forward anything like a complete array of inducements to the study of the beautiful and the cultivation of the imaginative faculty; this would require a knowledge of art and a degree of taste and philosophical acumen to which we lay no claim. Such discussion, moreover, would of itself exceed the limits of a volume. What we do purpose, is to offer some suggestions which may serve to give direction to early studies on subjects connected with taste. It is to the ethical aspect of this inquiry that we desire mainly to give prominence. This, indeed, is the point most needful to determine in calculating the bearing and position of art in relation to other subjects of education. We proceed to inquire, then, how far refinement in taste and the cultivation of the imagination conduce to the perfection of the higher mental discipline; in other words, under what conditions and limitations it is safe for a young man to devote his attention to the study of art.

The fact that we are endeavouring to exhibit the outlines of a scheme of mental discipline, would oblige us to take, perhaps, too severe and exclusive a view of our subject, and to submit it to a test which would in itself alone be insufficient. The domain of imagination is commonly regarded as a land of liberty, and the attempt to impose any terms whatever as the mean of naturalization within its border would be resisted with jealous warmth, doubtless, by some.* We do not purpose to confine our remarks to the severe aspect of the question, or extend them beyond what is needful to put the inquiry on a true and unassailable footing. By freely stating what we feel sure all lovers of art would accept as the condition of its legitimate pursuit, we shall not forfeit the claim to greater freedom of remark. Let us be careful first to define, as far as may be, the exact disciplinal value of a cultivated taste in relation to the corresponding cultivation of the other faculties. Here, then, we must assume, that when we speak of taste in relation to the Fine Arts, we allude to something which has a definite meaning in our reader's mind. We are not bold enough to attempt to give a new definition of so subtle, and in the judgment of some, perhaps, so capricious a thing as taste, but prefer rather to adopt the following, as being sufficient for our present purpose :—

"What we call *taste*," says Jones of Nayland, "in the metaphorical

---

* "Ingenium miserâ quia fortunatius arte
Credit, et excludit sanos Helicone Poëtas
Democritus," &c.—*Hor. de Arte Poet.* 295.

sense of the word, is that faculty by which we distinguish beauty and excellence in the works of art; as the palate distinguishes what is pleasant in meat and drink. This latter faculty is natural; the former, so far as it signifies judgment, is the result of education and experience, and can be found only in a cultivated mind."

Whatever it may be understood, in its various differences of acceptation, to mean, it doubtless involves a certain condition of the critical faculty. Refinement of the taste implies a maturing and sharpening of the powers of judgment, and a gradual widening of the basis upon which its operations are conducted. Whether taste be in itself and in its origin a natural gift, whether it be altogether denied to some while it is possessed by others in a state of original perfection, this is a question with which we do not meddle. We contend, that in so far as it is capable of cultivation, it depends for its growth upon a corresponding activity of mind in relation to the subject-matter of which it is cognizant. This may seem to imply no more than that, as taste is confessedly an attribute of the reasoning faculty or the understanding, it grows with its growth and strengthens with its strength. Even so; but that is not the view of taste which is implied in the notion of those who would claim for it a *status* superior to and independent of the colder region of intellect, and who would subject it only to the arbitrary and self-regulated conditions of its own consciousness,—who would claim it as an exclusive attribute of genius, akin to the creative genius of poet, or painter, or sculptor. We need scarcely say that much of the affectation and arrogance which accompanies the want of true taste has its origin in absurd individual misconceptions of this character. We mention such only to reject them as unworthy of anything like a true estimate of taste.

Doubtless there is such a thing as the instinctive judgment of high genius,—that τέχνη ἄτεχνος which is here and there met with in the world; but this proves only that taste admits of various degrees of development, from that in which the successive stages of its growth are distinctly observable to that in which they seem blended in one simultaneous act of thought and judgment. Whether the former of these conditions be only a faltering and abnormal exhibition of that which is seen in its true character only in the genius of intuition, is an interesting question, but it does not affect the assumption that taste is capable of cultivation and refinement.

In claiming for taste a connection with the active exercise of intellect, we separate it off sharply from *dilettanteism*, and from that desultory state which would enfeeble the mind and lay the subject of taste open to grave moral objections. It is in virtue, therefore, of its strict amenability to the rules which apply to other studies, that we claim for it a distinct disciplinal value.

The refinement of the critical faculty is doubtless the result of a combination of influences. The power of interpreting impressions produced upon the senses by the contemplation of external objects in a language intelligible to the mind itself is not a simple matter.*

* The power of interpreting such impressions in a language intelligible to *other minds* is quite another thing. It is a *singular* gift—far rarer than the taste which simply "appreciates," or the "ardent sympathy" of enthusiasm, which is too often

Before proper discipline has been exerted, the balance necessary to be established between the operation of the senses and of the mind is imperfect. The mind is liable to be imposed upon until its jurisdiction is fairly established. When the judgment too readily assents to the appeal of the senses, the result is commonly an undue arrogation of authority, without anything like ground for such confidence. The man of confident, as well as hasty judgment, in matters of taste, is little likely to succeed in the attempt really to cultivate and refine his powers.

We contend that there must be a patient and unassuming spirit of beginning at the beginning in this as in every other matter appertaining to education. The critical faculty in man is one which requires most time to mature, and will least of all bear to be precipitated into maturity, inasmuch as it is the business of this faculty to pronounce, as well as to form, judgments on matters of taste. There may well be a certain deliberativeness and hesitancy about the development of powers so large, and which require so little encouragement to declare themselves in the majority. Time and pains bestowed upon the several degrees in their attainment will, after all, seem to be most valuably bestowed.

The habit of *accurate observation*, then, will lie at the foundation of that growth of the critical faculty which we have described as complex in its nature. How does the critical faculty develop itself out of this origin, and where does the complexity in its character begin?

In talking this part of our subject over with a friend for whose taste we have a deep respect, we obtained the following account of his experience, which we think of value and of greater interest than an entirely abstract answer to the question proposed.

"I owe the early growth of my taste," he said, "to my boyish familiarity with the noble church of my native town—a gem of architectural beauty and interest; and this not in the way of sentimental influences such as are commonly ascribed to what is old and historical, but in a practical matter-of-fact fashion. The moment I began really to *observe*, I set to work to sketch portions of the church, the ruined chapter-house, the mouldings, the decorated windows, but particularly the altar-tombs, with their recumbent effigies of Crusaders. My object was to produce exact copies of the different objects which attracted me. I bestowed the most minute attention upon details, was never tired of my work, but again and again drew from the same models; at last I began to *study* what I had so often reproduced, and with more careful study came a certain intelligence of *judgment* in relation to these various objects. I set to work to ascertain their historical and architectural value, and finding this to be high, I carried with me some fastidiousness and boyish jealousy into my observation of the remains of other ancient buildings. I began to compare styles, and to acquire an appreciation of minute differences in the characteristic features of various periods. The critical faculty had started all at once into vigorous life, without my being conscious of so high-sounding an acquisition. This very want of

---

mistaken for inspiration. "The stimulus which impels a young or inexperienced fancy to expression is a very different thing from that thorough realization of a great action or stirring incident, which alone enables one mind to imprint its own impressions in sharp and vigorous outline on another."—*Article on "Poetry of the Past Year,"—Christian Remembrancer, April,* 1856.

consciousness favoured the growth of a *quality of judgment* which I afterwards recognized and acknowledged as *cultivated taste*. But first in order, I repeat, was the dogged and accurate devotion to details in the objects with which I had been so long familiar; this was the first step in the analysis of those vague impressions which so far had manifested themselves only in an undefined regard for the old church—the first spelling out of the charm which constituted its attractions. Then, when I had well-nigh wearied myself with the effort to acquire the power of accurate rendering, the interest began to assume a more intelligent and complex character. There was an unskilful and imperfect balancing of many considerations, such as I have described. As this effort became more continuous, and the adjustment of the balance a matter of greater nicety, judgment developed into taste, and an intuitive faculty—or rather what was really the result of discipline, but what, from having become habitual, seemed to bear the semblance of intuition—was the result. This was the case, at the same time, with other objects of study—coins and the like. This I conceive to be the history of the little that I possess in the way of taste."

This account our experience indorses as a true analysis. When the growth of taste has advanced thus far, how may we describe its further progress? Being what we have described it, we believe that it assumes steadiness and breadth in proportion as knowledge increases. The larger the grounds which are presented to the observation of the critical faculty,—the more sound and precise the acquaintance with the facts which form the subject-matter of judgment, the more likely the taste is to gather strength and delicacy of action. Here, however, come in other considerations; the analytical process soon claims assistance from the synthetical. The desire for system—for order in the mass of evidence examined, in the various objects which have been subjected to analysis—the discrimination of principles only half-separated from a perplexing *substratum* of facts; these all lead the mind on to philosophical considerations and to its severest labour. The great desire is for simplicity and for a proper adjustment and subordination of principles; the mind begins to see that in all beauty and grandeur of conception the element of simplicity is paramount. It is here, then, that we witness most frequent failures in studies connected with taste, a failure incident to the difficulties of this stage of the progress, and due to the fact, that whilst there are many men capable of fulfilling the conditions of the study thus far, there are few possessed of a philosophic appreciation of first principles—few who can discern the unity which reigns amid the varied and complex forms in which beauty is presented to the mind—few who can, in the words of an old friend's Latin prize poem at Oxford,—

"Multiplicem rerum cognoscere simplicitatem."

But just in proportion as the study increases in difficulty does it furnish ground for the legitimate discipline of the higher mental faculties. It is to be observed, that we have in some measure subjected the domain of imagination to the jurisdiction of intellect; by which we do not mean that the poet or the painter is to proceed upon the idea that his fancy must wear the bridle and the bit of the logical *regimen*,* but only that

* "Dabitur licentia sumpta pudenter."—*Hor. Art. Poet.* 51.

the student, in dealing with the works of poet, painter, or musician, may bring a severe and well-accredited test to bear upon them. Nor, again, would we be understood to mean that a high condition of the critical faculty is all that is needful to the critic of taste, but only, indeed, that, with all his other qualifications, he must be a man of practical logical acumen, exercised in nice distinctions, and skilled in the difficult process of simplifying and discerning the proportionate value of the subject-matter of his studies. This is the view of the matter which commends itself to our present consideration, and we think we have said enough to show that those studies which contribute to the cultivation of the taste are neither in themselves dangerous nor calculated to enfeeble the intellect of the student; on the contrary, that they are, under certain conditions, subsidiary to the severest mental discipline, and in all cases most desirable as a check upon the imagination. And here we may be permitted to call attention to a tendency in the poetry of the day to disregard those considerations which we would thus associate with works of the imagination; that is, a tendency to carelessness and to a neglect of the fixed rules of art, as well as downright slovenliness of execution.* By fixed rules, we mean those requirements of choice, as to subject and as to care in carrying out such definite aim, which cannot be regarded as arbitrary; such conditions, for example, as answer to the choice of subject and propriety of treatment in the painter, and which cannot be violated without manifest disregard of the principles of art.† Perhaps the most convincing evidence of the faults to which we allude, and of the necessity for discipline in those who would influence and refine the taste of their fellow-men, is the absence of simplicity and the consequent absence of charm in their poems as a whole.

A good illustration of the foregoing remarks may be drawn from the subject of music. Now we would not deny that there are some persons who possess musical taste of a high order without having anything like a scientific knowledge of the subject; but this is not to allow that such natural gifts are incapable of cultivation and refinement. Acquaintance with the principles of harmony will invest the critical qualities of high natural taste with the right and with the power of maintaining judgments on subjects of taste which, it may be, owe their origin to genius alone. Science is with such gifted persons nothing but the *rationale* or philosophic rendering into system of their impressions, each on its own basis, and in its relation to other parts of a laboriously-defined and well-considered scheme.

Most people have something for which they claim the name of musical taste, but few are in the way of ever cultivating or refining their

---

* "Vos, ô
Pompilius sanguis, carmen reprehendite, quod non
Multa dies et multa litura coërcuit, atque
Perfectum decies non castigavit ad unguem."—*Ib.* 291—295.

† We nowadays hear the same assumption which Horace heard and answered:—

"Pictoribus atque Poëtis
Quidlibet audendi semper fuit æqua potestas.
Scimus, et hanc veniam petimusque damusque vicissim:
Sed non ut placidis coëant immitia, non ut," &c.—*Ib.* 9—12.

"Sed in vitium libertas excidit, et vim
Dignam lege regi: lex est accepta."—*Ib.* 282—284.

judgment. There are few who subject their love of music to anything like a studious discipline. It is true that the common mode of teaching music is, too often, so little calculated to affect the taste or to inform the judgment, that it becomes little else than a more or less elaborate schooling of the fingers or the voice. But this is not what we mean by the cultivation of the musical faculty, and we would predict disappointment as the natural result of this system in the case of those who take it up with any but the very commonest expectations. On the other hand, there is a pursuit of music which, we are assured, would yield the most abundant return to the student. This consists in that very same study of the first principles or grammar of the science which we have spoken of as characteristic of all study which is designed to elevate the critical faculty. It consists in an analysis of harmony, which is to the scholar in music what the study of the axioms and postulates of geometry is to one just opening Euclid, or the scheme of opposition to one commencing logic.*

And going on to speak of a kindred subject—painting; there is here, likewise, a foundation-study of elements, or simple truths, in a certain application of which lies the art of successful colouring and delineation, and all the mechanical power of the highest artist. What it is which makes him great in his work, we shall see presently. But speaking merely of the internal appliances of art, the great painter will almost certainly be a man of great natural genius for form, or colour, or arrangement. And yet how close an apprenticeship to nature, to the study of anatomy, to the practice of chiaroscuro, &c., do really great painters and sculptors invariably serve! How laboriously do we find, from time to time, men of the highest genius in all the several arts striving after the perfection of an ideal which they alone have the power to realize in their imagination! How do the numerous studies of great artists which have come down to us attest this! What a strange tale do the MSS. of great poets sometimes tell us of the most laborious and gradual finish! How does the extraordinary care bestowed by our great singers and musicians upon the study and practice of their compositions witness the same!

People of ordinary musical cultivation may be content to gain some insight into the mysteries of the art through the medium of analogy and familiar illustration. We hear professors speak of the *grammatical correctness* of musical compositions, and, beyond this, of style, and character, and depth. Now, the analogy conveyed in the use of these terms may teach us that, to those who are ignorant of the principles of harmony, musical excellence is a thing of uncertain appreciation. It is true that we may know something of a language without being accurately acquainted with its grammar, but we know that the *degree* of our acquaintance with it depends upon our familiarity with its accidence and its syntax. Now, in the case of a person speaking his own language, this grammatical knowledge has become, in a measure, instinctive. Just so is it with high musical cultivation, with those whose natural genius

* We borrow this notion in respect to musical learning from a friend who has studied the first principles of the science with the most remarkable success, and to whom the knowledge thus acquired has proved an invaluable resource, as enabling him to give correct and ready expression to his own conceptions in music.

has been disciplined into a kind of second nature, who can think and render their thoughts into musical expression with the same ease with which the poet or the philosopher employs language, or the painter and sculptor their respective media of expression. If it be difficult for us, under any circumstances, to grasp the full meaning of the musical composer,—for this reason, that we are ignorant of the significance of the language which he employs, or at any rate not familiar with it,—then it would seem that the only means of sharpening our intelligence is to devote definite pains to the study of the principles or grammar of the art, the rules of its construction, and its prosody. Just so with painting. Those who have possessed themselves of *no* nucleus of growth, *no* knowledge of the ascertained principles of the art, are not in the way of carrying on the cultivation of their taste in any certain or systematic manner. The restricted aim with which we approach this interesting subject obliges us to a severer view than we should otherwise take of it. We do not dwell upon that love of nature and that keen faculty of observation, which is the sole and unconscious discipline of many a delicate judgment in matters of taste. We do not attempt to number those unseen and untraceable influences which kindle genius and invest men with an unpatented nobility of mind. We shall presently, indeed, confess that we have good reason for not venturing to educe more than a few simple rules, or to lay down a law which is, to a great degree, unwritten. The principles of taste, like the rules of logic, have a tacit existence, are tacitly violated or observed. The scheme of taste is to be gathered from the acclamation of the most cultivated of all time—not from the writings of any man, or any body of men, of any one age or interest. How men enter into the mysteries of this scheme is not to be told. The imagination is not an outlaw to the scheme of man's intelligence, but it is a lawless element, and too subtle to be reduced to uniform allegiance.

We have been considering how some aid may be given in this branch of education—what labour will, at any rate, not be fruitless, even if it should fail of influencing the taste so directly as might be desired. Accurate and elementary study of an art may grow into a scientific and philosophic instinct; it cannot cramp genius; it will improve and discipline talent; it will repay the most unpoetical mind in the hard coin of method and precision.

As some guide to the formation of judgment in relation to the fine arts, we may remark, that the aim or scope of the artist must first be considered, then the nature of the means by which that aim is sought to be attained. The different styles of poetry, painting, music, &c., answer to one another. There are many *poets* in conception and in appreciation of the aims of art, but few in execution.

Poet is a generic term. There are poet-painters, and painters who have no taste or sense of beauty: in some there is no such element as imagination; in others this faculty is powerful, but undisciplined. What noble intellectual ruins attest the worth of discipline and the cost at which it is slighted!* How many have the command of almost indefinite natural resources—how few have that element of genius which consists in perseverance!

---

* "Vis consilî expers mole ruit suâ."—*Hor. Od.*

A great principle of beauty and interest is conveyed in the ancient paradox, πλέον ἡμισὺ πάντος. The imagery of poets and painters of the higher class will be found to embody it, and is worthy of careful study under this suggestion. Horace's

> "Sæpius ventis agitatur ingens
> Pinus; et celsæ graviore casu
> Decidunt turres, feriuntque summos
> Fulgura montes"—

is an example of that power of genius which consists in the ability to refrain from a perfect delineation, and to leave to imagination just that half of the picture on which it will dwell with most delight. This unexpressed, but implied world of beauty, is that in which the poet himself, and all who share in his creative genius, find the most varied occupation of their fancy and thought. It is a legitimate and graceful application of the *omne ignotum pro magnifico*, a principle which goes far to interpret man's awe of the mysterious beauty of nature. In the lines which we have just quoted there is room left, in the suppressed member of the comparison, for an array of beautiful images, each varying with the mind and imagination and poetic power of the reader. Indeed, this is an example of what we often find ourselves compelled to confess, in translating poets into another language, viz., that poet alone can worthily render poet, that one stanza of Horace would sometimes tax the genius of Coleridge, and Wordsworth, and Byron, could we summon them to the rescue; *ex. gr.* this,—

> "Quà pinus ingens albaque populus
> *Umbram hospitalem consociare* amant
> Ramis; et *obliquo laborat*
> *Lympha fugax trepidare rivo.*"*—*Hor. Od.* ii. 3.

Here is a perfect picture sketched by the poet *from nature;* the stream is before our eyes—but the English words to express it! These may be found in the like pictures of our own true poets, but they are coy of showing themselves to a translator. Mr. Tennyson's "Brook" may help us; but Horace's "winds about, and in and out," within the compass of six words. By the way, it would be excellent practice to follow out some of these undesigned coincidences of poetic delineation, and bring them into conjunction, side by side. This is what is, of course, done by the ingenious illustrators of poets, but we commend it as a definite exercise in the cultivation of taste. What we must remember particularly is, that although the painter will study all the features and lineaments of nature, and although he will multiply studies of daguerreotype minuteness of detail *for his own use,* yet that a great landscape even is never a mere representation of what has been presented to his eye in nature. True to nature it is, but there has been much intervening study and reflection, much exercise of the imagination, much elevating, chastening, and refinement of its suggestions, before the picture

* "This is true poetic description, in which, while the poet appears only to express a docile recipiency of what nature bestows, he gives back, to be blended with it, both his own emotion and *the light which a poet's imagination creates.*"—*Prof. Reed on Byron's description of Lake Leman.*

We venture to add from Pindar—

> "Ἀστὴρ ἀρίζηλος, ἀλαθινὸν
> Ἀνδρὶ φέγγος."

comes to be what we may see it on this 1st of May in one corner or another of our great Academy Exhibition. Turner possessed this power to a greater extent, perhaps, than any other painter of modern times; he could record in his mind the characteristic elements of a picture, *i.e.* of a particular concurrence of picturesque circumstances (*e.g.* in the neglected region of cloud-land), with wonderful fidelity; we allude now to all but his very latest pictures. This is abundantly shown in Mr. Ruskin's first volume of Modern Painters.

"The distinction between nature and art, that is, between real and ideal beauty, is the same which separates taste from genius. Art is nature destroyed and reconstructed. Genius is taste no longer as the appreciator of natural beauty, but the creator of beauty ideal and superior to the former.

"Taste appreciates: it is the moral in humanity in the presence of the moral in nature; it decides whether the natural symbol is in accordance with the moral idea. Genius does more than this, it creates. Genius contains the same elements as taste, but in a higher degree; genius, by reason, apprehends unity more thoroughly; by the faculty of representation, it retraces more vividly the different parts of an object; lastly, by the sentiment, or love, it not only distinguishes the moral idea, it reveres it, aspires to this ideal, which it detaches as much as possible from nature; it etherealizes the forms of matter, and takes away all that can obstruct the idea. Taste reposes tranquilly in the contemplation of the beautiful in nature; genius rends and reconstructs nature, in order to make it more like the idea. . . . . Genius destroys nature while it reveres it, and then restores it more pure and more like the moral idea graven upon it by the hand of God; thus the marks of genius are destruction and creation. . . . . Thus the artist who, seriously regarding nature, should be satisfied to copy it faithfully, would fall from the rank of an artist to that of a mechanic. I see that this portrait very exactly represents such a person, but there is no ideal there, the work is not by an artist. This decision condemns the whole school of painting, of sculpture, or of music, which does not conceive of nature as symbolic, and which does not consecrate art to the discovery of symbols, the most pure and the most expressive of moral ideas. If art has for its great purpose the picturing forth of moral beauty, the result is, that it excites in other minds the sentiment of the beautiful which the artist possesses."*

Such is Victor Cousin's view of the difference between taste and genius, and the true end of art. We may go on to say that nature is in one sense the perfection of art. True, man has done what he could to mar the several features of that perfection which characterized the work of the Supreme Artificer. It is the mission of art to impress upon fragments of nature that recovered image of perfect beauty which belongs to creation. Genius recovers; art applies, with a spiritual and ethical design and power in the act.

(*To be continued.*)

---

* "The Philosophy of the Beautiful," by Victor Cousin, chapter viii. Translated by J. C. Daniel. (Pickering, 1848.)

REV. C. H. DAVIS *versus* "F. F. W."

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—If "F. F. W." will take the trouble of turning to p. 69 of your February No., he will perceive that the "ominous" heading had reference to a little book entitled "Mind your Stops!"—the "!" being part of its title. As to the merits of the said book, I have, it is true, seen two opposite opinions in Reviews; but I ventured to give mine in its favour. I then (as "F. F. W." truly observes) diverged a little in order to discuss "one or two points, chiefly concerning the pointing of parentheses . . . . . and quotations." (P. 69.)

If "F. F. W." be able to supply '*more* than two modes of pointing *parentheses and quotations*, perhaps he will be good enough to supply them for the benefit of your readers? At all events the two which I gave are the two general modes. And my remark was limited to *these*.

"F. F. W." does not even take the trouble of quoting me correctly! My illustration was this:

"Is that work *quite* 'out of print'?" (P. 70.)

And my argument was based upon the fact that the question here turned upon the word "quite"; now "F. F. W." recklessly misquotes the illustration, and *attributes* to me the words "Is that work out of print?" and then proceeds to offer his own comments upon them!

I have no reason at all to quarrel with "F. F. W." 's statement that brackets alone are correct to mark interpolations; for I should have supposed that they *were* so. But I have been so much teased by compositors altering my brackets to parentheses in those cases, that I could not have supposed them capable of such changes had the rule been quite as absolute as "F. F. W." contends it is; I therefore wrote as if it might be open to two opinions. All I can say is, that if your readers should take "F. F. W." 's advice, and leave punctuation to the printers and compositors without giving directions as to brackets and parentheses, they will sometimes, even in London offices, find their brackets set up as parentheses!

As to dots for omissions, I had no idea of so many as "F. F. W." chooses to suppose.

As to the P.S., let "F. F. W." look again; I did *not* propose to alter the general rule of quotation; I spoke only of cases "whenever the letter 'v.' *is used* as an abbreviation for verse" &c. Does "F. F. W." doubt the reality of or the necessity for such cases? Take an illustration:

"In John iii. 15 the word *αιωνιον* is translated 'eternal', but in *v.* 16 it is translated 'everlasting'."

Now if an author should here forget to italicize the "v" it would be set up thus:

"but in v. 16 it is translated 'everlasting'",

and would of course convey to the reader the idea that in the *5th chapter* and at the 16th verse it is translated "everlasting", instead of "verse 16" of the same chapter!

This is one case out of hundreds. I have learned by experience the

need of the use of an italicized "*v.*" in *such* cases; and I often see the ambiguity caused by the omission of it.

In all ordinary occasions of mere chapter and verse, as I did not propose to disturb the general rule, so "F. F. W." 's criticism is mere waste of words.

In conclusion, permit me to request your readers, who may have the opportunity, just to compare a page of the "Christian Observer" with a page of the "Church of England Magazine", both printed by established London houses. They will find in the one an exclusive adherence to the "Plan A.", and in the other an exclusive adherence to "Plan B.", of my former letter at p. 69. An author may naturally ask, "When printers disagree who shall decide?" But the fact remains—they *do* disagree. And this fact led me to reflect; and in my letter I gave my reasons for supposing that "both are right, and both are wrong" &c.; and that a COMBINATION of the TWO forms *according to the sense* is the true settlement of the question.

I hope that "F. F. W." will another time take the trouble to *read* what he undertakes to criticize and to controvert.—I am, Sir, yours truly,

C. H. DAVIS.

Nailsworth, 2. *April* 1856.

INFLUENCE OF THE MOTHER ON HER FAMILY—IMPORTANCE OF THE STUDY OF "COMMON THINGS."—"The mother has to discharge, as it were, the moral duties of both parents. She is the centre of home influence; it is she who is to set the guiding example of sobriety, thrift, industry, and cleanliness; she ought to have a fair share of skill in household matters, and sufficient knowledge to be able to answer the prattling questions of her little ones. She should have strength of body, the result of early exercise, to enable her, without stimulants, to go through the daily work of her household, and cheerfulness of mind, which waits upon health, and the conviction of her own heart that she discharges, from day to day, the duties of that station in which God's providence has placed her, in a manner satisfactory to those about her, if not completely so to herself. And now, let me ask, How are the daughters of the working classes brought up to fit them for their lot in life, to be the wives and mothers of men in their own station? Let us take the more favourable case. A girl is sent to a National or a British school. Seated for five or six hours every day on a hard form, without a back or any other support, till her spine gets bent or twisted, she pores listlessly over the pages of a closely small-printed Bible, or now and then stands up in her place and drones out—I cannot call it reads out—her verse in turn, often without having the least glimmering of a notion of what she is reading about. Then she is put to make things like hooks and eyes, which she calls figures. She scratches some uncouth zigzag lines, which she is told is learning to write, and this comprehends what is implied under the taking title, 'a sound moral, religious, and scriptural education.' A year after she leaves school she will have forgotten nearly all that she had so imperfectly learned—in some respects worse off than those girls who had lived about the streets, and never went inside a school; for freedom from constraint and exercise in the open air will have preserved for them the full use of their limbs and the vigour of their constitutions. * * * * * Why should not a 'young woman' be taught a knowledge of those common things with which she will have to deal the whole residue of her life? Why should she not, for example, be taught to light a fire, to sweep a room, to wash crockery and glass without breaking the half of them, to wash clothes, to bake bread, to dress a dinner, to choose meat, or fish, or vegetables, and to know how to keep them when bought; what clothes are most economical—cheap, showy, tawdry rags, or those which are perhaps more expensive, but cheaper in the end? Why should she not be taught the use of savings-banks and the results of thrift?"—*Lecture on Female Education, by the Rev. Dr. Booth.*

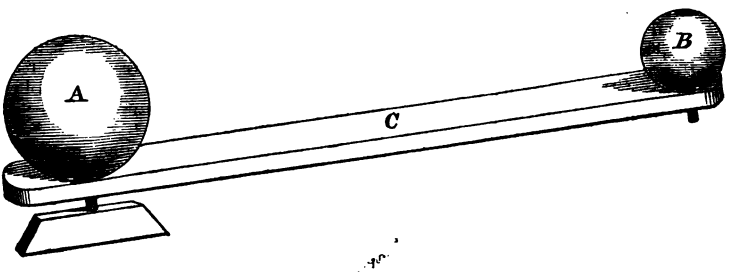
DOES THE MOON ROTATE ON ITS OWN AXIS?

A CONTROVERSY on this subject in the *Times* was lately opened by a letter from Mr. Jelinger Symons, inquiring the grounds on which the received opinion rested; the subject was certainly not taken up in the philosophical manner that might have been expected by the correspondents whose replies were published, and we are therefore induced, from the importance of the question, to give it a large place in our pages.

We may state the point at issue thus:—It is granted on both sides, that the Moon revolves round the Earth in 27 days 7 h. 43 m., or a lunar month, presenting always the same hemisphere to us; and that the Earth and Moon together revolve round the Sun in a year; but there is likewise attributed to the Moon a rotation *on her own axis*, performed in exactly the same period as her revolution round the Earth, an assumption which is considered necessary to explain the well-known fact that the same parts of the Moon are always presented to us. This would, indeed, if true, be a *curious coincidence;* still, of course, it is not for this cause that we are disposed to doubt the truth of this elaborate hypothesis, but rather because the actual appearance of the Moon is best explained otherwise, and, indeed, because, were it true, the Moon would present to us every side in the course of a month.

Mr. Symons, in his letter to the *Times*, suggests that the Moon "performs precisely the same motion in relation to the Earth that a point on the tire of a wheel does to the box or axle, or that the round end of the minute hand of a watch does to the pivot in the centre." Other illustrations might be multiplied; such as an inkstand near the rim of a round table, the table revolving round its centre; or a ball held in the hand at arm's length, while we turn round upon our heel. Of course the observer's eye must be within the circle, or near the point that represents the Earth; for to an observer without the circle, as in the Sun or a fixed star, every side of the Moon *will* present itself in the course of a revolution, or a lunar month.

The following will give an experimental illustration of the subject:—



Let A be a ball representing the Earth, B a smaller ball, representing the Moon, and C a hand connecting them, and moving

freely round on a pivot, through the centre of A. Let B also be fixed to the extremity of C, by another similar pivot. Mark the point in B nearest and opposite to A. Move the hand C entirely round, so as to complete the revolution round A, without touching the ball B. The point X will remain opposite to A, and complete its transit round it without varying that position, presenting the same face to A. This is precisely how the Moon revolves round the Earth, presenting the same face always to it. Now, turn the ball B on its pivot whilst it is making the same revolution as before, round A (as the school-book astronomers tell us the Moon turns), and we find that it successively presents every portion of its own surface to A; nor will this effect of its rotation on its axis be in the least degree affected by its revolution round A. Its rotation will present precisely the same changes of surface whether it stands still or revolves round A. The motion of the Moon and its relation to the Earth are simply centrifugal; no other force acts on the Moon such as would be requisite to create rotation.

We can certainly explain satisfactorily as above the appearance actually presented to us by the Moon in her course; and, therefore, we do not see why we should take into consideration the absolute motion in space of a point on the Moon's surface: our question is merely with our model, whether the lesser ball is to rotate on its own axis or no. Indeed there is no authority for assuming that the Moon has any axis at all; we only know that its section towards us is circular, though, without doubt, if it rotated, and had its axis perpendicular to its orbit (both which facts are, in works on astronomy, laid down and taken for granted), we should expect to be able to observe its form to be spheroidal. We find it stated, likewise, that all the secondary planets, such as the satellites of Jupiter, rotate upon their axes in exactly the same period in which they revolve round *their* primaries; whether this statement is based upon observation, or merely presumed from analogy, let astronomers tell.

The librations and the inclination of the Moon's orbit to the ecliptic present no difficulties in our theory, more than in that commonly received; nor will it make any difference whether we consider the Moon to revolve round the Earth, or both Earth and Moon to revolve jointly round their common centre of gravity.

It would almost seem as though the rotation of the Moon on her axis must have been taken for granted and looked upon as a necessary thing to begin with, and then the current explanation as to her time of rotation adopted as an apparent means of reconciling facts. F. I.

The following are a few of the Letters written on this vexed question, most of which have not been previously published :—

THE MOON'S MOTION.

TO THE EDITOR OF THE "TIMES."

SIR,—This subject excites so much interest, and I have received so many communications on both sides of the question, that I very reluctantly trespass once more on your courtesy, praying to be allowed to support my statement more fully, that the

Moon has no rotation on her axis. My opponents produce elaborate proofs of the palpable fact that she revolves round the Earth, turning the same hemisphere towards it. This is not axial rotation, such as the astronomical books attribute to the Moon. Nor is the difference one in terms only, but in distinct kinds of motion, governed by different laws, and producing widely different results and phenomena. It is one with which every mechanic is familiar.

The rotation of a body round a centre distant from it, like the governor-balls of a steam-engine, cannot be performed without progressive motion round its own orbit; but rotation on its own axis can. Arrest the Earth in its revolution round the Sun, and it will still rotate on its axis, for it has axial rotation. Arrest the moon in her revolution round the Earth, and she will be motionless, because she has no axial rotation. To put this question to a practical test, let an orrery be constructed so that the Moon shall rotate on her axis, as we are told she does, in the same period in which she revolves round the Earth. Let this period be ten minutes. I affirm that at the expiration of five minutes after the orrery is put in motion, the Moon will present to the Earth exactly the opposite hemisphere of her surface to that which she presented to it at starting. If I am right in this, the question is settled, and the Moon has no axial rotation; for at whatever rate she rotates a similar result will ensue.

The practical effects of the moon having no axial rotation seem to be chiefly these —and they are not unimportant:—The projectile force of the centifugal motion of the Moon will affect that side which is the most remote from us, causing her convexity on that side, together with the ascertained fact that her centre of gravity is on the other side of the centre of her circumference, and the probability that there are humidity, atmosphere, vegetation, and, possibly, inhabitants there. If the Moon had axial rotation the projectile force would take equal effect on the whole of her surface; she would be a spheroid oblate at the Poles, and these phenomena, discovered by the German astronomers, would be deprived of the support they derive from her axial immobility.

If I am in error in my humble effort to correct what appears to me to be a fallacy well worth removing, I shall be grateful to any one who sets me right by relevant reasoning; but, at present, I confess that I am conscious only of the mistake of supposing that a question of science might now, even in England, be treated with candour and debated with temper.—I am, Sir, your obedient servant,

April 12. JELINGER SYMONS.

P.S. Mr. Hopkins apprises me that he has already supported the same view as myself in his well-known work on Geology.

38, THURLOE SQUARE, BROMPTON, LONDON,
8th April, 1856.

SIR,—I was much pleased to see in the *Times* of to-day the question of the Moon's rotation brought forward by you. It is too bad that such glaring errors should be propagated in our schools.

In my work "On the Connection of Geology and Magnetism," I have noticed this error, as you will observe by the accompanying extract. The question was also discussed last year in the *Mechanics' Magazine*, but it is difficult to eradicate old prejudices. I shall watch the discussion with great interest, and probably join in it should the Editor encourage it.—I am, Sir, yours respectfully,

EVAN HOPKINS.

Extract from "The Connection of Geology with Terrestrial Magnetism," Second Edition, page 129.

"It is said that the Moon turns on her own axis, notwithstanding that she always presents the same face towards the Earth. That a body revolving round a centre, and *continuing to present the same face to that centre*, should rotate on an axis situated parallel to the revolving axis, is physically impossible. Yet it is maintained, and absolutely stated in our astronomical works, that the Moon rotates on her axis.

"Suppose a balloon were to float around the earth, it would continue to present the car towards the earth, or centre of revolution, in the same manner as the keel of a vessel sailing round the earth; yet neither can be said to have rotated on their own axis in making the circumnavigation.

"The governor-balls of a steam-engine make analogous movements, and it will be at once perceived that they merely *revolve* around the centre of revolution, and *do not rotate* on their respective axis."

38, THURLOE SQUARE, BROMPTON,
April 12*th*, 1856.

SIR,—In reply to your favour of yesterday's date, I beg to state that *I wrote two letters to the Editor of the Times* in support of your argument, that *the Moon does not rotate on an axis situated within herself*, and that she only revolves round the earth as her centre of revolution.

I regret to observe, that the Editor has not only declined inserting my letters, and others which have been forwarded to him in your favour, but has allowed letters to be inserted which were unworthy of the argument, and a disgrace to common sense and men of science.

I recommend "E. E. D." to complete his demonstration, by forming a ring of boys, and make them walk round his chalk centre, and then I put the question to him if it was possible for the boys to *rotate individually* on their own axis? Were one of the boys to be taken from the ring, and placed on the chalk centre, and keep his face constantly to one of the boys in the ring while they were walking round, the boy in the centre would rotate on his own axis, but those around him only revolved round his centre.

A correspondent asked, "Where rotation ended and revolution began?" I answered, When the axis left the body and became situated without.

Again, I said that a cog-wheel, as a whole body, rotated on its own axis when it moved; but in speaking *only about the teeth*, then we say the latter revolve round the central axis, whilst the teeth continue to present the same parts towards the centre; a tooth can only rotate on its own axis by taking it out of the rim of the wheel and fix it in the centre.

Again, place three balls,—one in the centre of motion, the second in the crank-pin, and the third on the connecting-rod, near the latter. The central ball will *rotate* on its own axis; the ball in the crank-pin will *revolve* like a portion of a ring; but the ball on the connecting-rod, although it moves round the centre, and presents different faces to that centre, yet it only *oscillates* like the connecting-rod. It is most extraordinary to me that such a simple question should cause difference of opinion amongst men who profess to know the difference between rotation and revolution.

I have disputed this, and many other errors which are propagated in our elementary works, for many years.

One of my supporters (Mr. Mushet) and the Cambridge men occupied the columns of the *Mechanics' Magazine* on the same subject, last year, for several months. The letters intended to support the Moon's rotation were as offensive and ridiculous as those which have appeared this week in the *Times*.

You are perfectly at liberty to make use of my observations on the subject. It is high time that such unaccountable errors should be removed.—I am, Sir, yours truly,

EVAN HOPKINS.

JELINGER SYMONS, Esq.,
Her Majesty's Inspector of Schools.

April 8*th*, 1856.

Mr. Roebuck remarked in the House on Friday evening, that few persons write letters to the *Times* without having cause afterwards to repent of it.

Mr. Jelinger Symons, in his letter to-day, headed "The Moon has no Rotary Motion," seems very likely to afford the earliest illustration of the truth of the observation.

Can that gentleman be aware that the difficulty he has propounded has furnished, time out of mind, a standing dish for discussion on small science? that it has been ever the *Pons Asinorum* of tyro astronomers?

Can he not perceive that he himself has written a very sufficient answer to himself? —in these words:—

> "If the Earth moved round the Moon, then the rotation imputed to her in the same period as the Earth's revolution round her, would be necessary to her presenting the same face to us."

Nothing more true! and *is it not so? does not* the Earth move round the Moon?

In which of the school-books that come under the official inspection of Mr. Symons, has he found that the centre of rotation between the Earth and Moon is coincident with the centre of the Earth?

Can he not perceive that no alteration in the situation of his pivot, along his slip of wood and two balls, can possibly *alter the fact* with respect to any of its parts?

ROTA TOTA.

[A Copy of this communication is sent to Mr. Symons, lest the *Times* might not extend to it the same favour as to his own.]

GREENOCK, 12*th April*, 1856.

SIR,—I have seen the *Times*, and from the inclosed* you will easily conceive that I feel very much interest on the subject of the *Moon's rotation*. Your *position* in society, and clear view of the matter, must soon, in my opinion, put the scientific world to rights on the point at issue, despite the sneers of the ignorant.—I am, Sir, yours most respectfully,

ROBERT WILSON, D.D.

JELINGER SYMONS, Esq.,
Her Majesty's Inspector of Schools.

9, BURY COURT, ST. MARY AXE,
9*th April*, 1856.

SIR,—Will you kindly allow me, through your Journal, to say a few words on the controversy about the Moon's rotation?

The gentlemen opposed to the proposition of Mr. Symons seem to confound progressive motion with rotary progression, and I do not think I can more briefly and better illustrate the difference than by the wheel of a carriage. If drawn or propelled forward, by whatever force, the wheel will rotate round *its own* axis; put the drag on to the wheel, and let the carriage be going round the Earth; the wheel, like the Moon, will then always present the same part to the Earth; and arriving again at the point from which it started, it will have made a revolution round the Earth, round the *Earth's axis*, but not round *its own*.

A ship sailing round the world presents to the fishes always the same face as the Moon does to us. Coming home again, it will surely not be said that the ship has performed a revolution—a rotation round *her own axis*, but round the axis of the Earth, round an axis lying within the *centre of her orbit, exterior* to herself. The ship, like the Moon, has a *floating*, but not a *rotating* progressive motion.

To the Editor of the *Times*. W. ADOLPH.

12, HANWAY STREET, OXFORD STREET, LONDON.

SIR,—On the day that the ribald letters relative to your remarks about the Moon's rotation appeared in the *Times*, I wrote a short letter to the Editor, requesting that he would insert my brief observations on the too severe animadversions of his correspondents; and asserting that the Moon *did not* rotate in the same sense as the Earth, or other than that in which every body revolving round a centre must rotate *ob id ipsum*.

True he inserted, the next day, your very terse and luminous letter, which quite superseded mine, or any other, on the *matter*; but I think, that after inserting half a dozen letters, all in the same strain, he might have given you the benefit of the humble support I proffered—I really mean humble, for an Oxford First in Mathematics is entitled to little weight.

---

* Astronomical Lecture. (Glasgow: Kerr. 1847.)

Will you excuse a stranger taking the liberty to suggest (in the same spirit that dictated my hope that your long-established character as an earnest and talented labourer in the cause of education should not be allowed to suffer from such attacks) that you would either call upon the Editor to insert my letter, or that some more influential among your scientific friends should be requested to vouch the correctness of your views under the sanction of their signatures.

Apologizing sincerely for this intrusion upon an affair which may be of little importance to you personally, I have the honour to be, your very respectful Servant,

WM. HAWKES LANGLEY, M.A., Ch. Ch., Oxford.

TO THE EDITOR OF THE "TIMES."

J. U. S. CLUB, 14, ST. JAMES'S SQUARE,
11*th April.*

SIR,—It is said that those who are in the wrong require friends, not those who are in the right. This is, doubtless, the view taken by the scientific world of Mr. J. Symons. He is perfectly in the right. His feeble and intemperate opponents, from a confusion of ideas, imagined that, because a body rotating upon its axis presents the same face successively to every point of the compass, therefore a body which presents the same face successively to all those points rotates upon its axis; not perceiving the difference between rotating on an axis (its own) within itself and one without. If this be true, it is equally so that, as the Earth rotates on her axis, every particle of matter composing her substance, except those on the line of her axis, rotates on its own axis.

AMICUS.

TO THE EDITOR OF THE "TIMES."

12*th April.*

SIR,—It is pretty well understood at College that a man may be a tolerable mathematician and yet know but little of mechanics. An example of this appears in the letter signed "A Wrangler," inserted in your Journal of the 9th. The letters also from your other correspondents seem to be equally unsound; and some of their modes of illustration for showing that the Moon does rotate about her axis prove how inadequately they have studied the subject. I shall confine myself to merely one, so as not to trespass on your valuable space.

We are told that a man has only to walk round a table, with his eyes directed towards its centre, and he will see at once that he has performed a rotation about his own vertical axis! Now, this I think is quite a misconception of the case; the man's body has performed a REVOLUTION round the table, just as a bead would do moved round a circular wire; but it has no more rotated about its own axis than the bead has, for his back has all the time been turned away from the table; and this is just the case with the Moon, which always keeps one and the same hemisphere away from us, and we therefore never see it. Now, what is really meant by rotation? An example or two will be sufficient: a spinning-top is an instance of rotary motion; a quoit hurled from the hand is another. But perhaps a better for our present purpose, is the diurnal rotation of the Earth in its course about the Sun; and what is the effect produced? Why this—that it presents *all its sides* diurnally to the Sun; instead of which the Moon presents to the Earth nearly one-half of its circumference, and that always the *same* half; how, therefore, is it possible that she can rotate about her axis? Strange, however, to say, all astronomical works agree in telling us that she has a rotation, and that it is performed in exactly the same time that she goes through one revolution in her orbit. Now, it is very remarkable that not one of them (of all the works that I have read) has ever given us any—*the least proof of it;* and yet they are always clear enough in the evidences which they produce of the rotation of the Sun, and also of that of the Earth; and equally so as to the Planets, Mars, Venus, Jupiter, and Saturn! But why have astronomers contented themselves with merely ASSERTING the Moon's rotation; they who, of all men, are usually so exact? It is for them to answer that question, and I hope that one of them will do so; in the mean time, I entirely agree with your correspondent, Mr. Symons, and have been for years of the same opinion, namely, that the Moon is decidedly *not* a rotatory body.

We have to thank Mr. Symons for the trouble which he has taken in bringing a subject of so much astronomical importance before the public; and I can but pity some of his opponents, whose want of temper and modesty of bearing says but very little for them.

VINDEX.

SUMMER HILL, BIRMINGHAM, 12*th April*, 1856.

SIR,—I trust a stranger will be forgiven for addressing you on a subject which, doubtless, at this moment, must occasion you some uneasiness. I allude to letters in the *Times* newspaper, having reference to the Moon's rotary motion. In the first place, you may console yourself that the writers were not THEMSELVES philosophers; nor simply desirous to test the truth of the dogma suggested. With regard to the question betwixt you, there must of necessity be some MISUNDERSTANDING. No man in his senses could possibly suppose a *distant* body to make one entire turn on its OWN *centre*, without showing *different phases;* and hence I presume, that as we *evidently* see only *one* portion of the Moon, *you* must necessarily be quite right in your conclusions. The arguments adduced against you are, to my own mind, frivolous, rude, and obscure; but I do hope, from its *publicity*, you will find some in *high quarters* who will take up the question, and support you. I have myself found the difficulties attending the introduction of new theories, more especially if they clash with long-established and settled notions. I have suffered insult and contumely; but in the hands of a man like yourself I anticipate better treatment; and shall feel obliged if (*at your leisure*) you will give me your candid opinion of the work I herewith forward.

I remain, Sir, your obedient Servant,

CHARLES HOPKINS.

BIRKHAMSTEAD SCHOOL, *April* 14*th*, 1856.

SIR,—As one of those who were startled with your letter denying the rotation of the Moon, I venture to address a few remarks in reply to your last communication to the *Times*.

We both admit that the Moon, in accompanying the Earth round the Sun, presents every side to the Sun in a month, and keeps the same side always towards the Earth.

You maintain this to be the result of the Moon's motion round the Earth, while astronomers have generally considered it to be the result of a proper rotation of the Moon on its own axis. In support of your view you say, that if the Moon were arrested in its course round the Earth, its rotation would instantly cease. I take this to mean, that if the Moon moved in an orbit parallel to that of the Earth, and accordingly presented only one phase, when viewed from the Earth, there would then be no rotation of the Moon on its own axis, and it would always present the same side to the Sun. You will excuse me for thinking this a *petitio principii*. For argument's sake, let me assert that the Moon would continue to revolve once in 655 hours and 44 minutes. Upon whom does the *onus probandi* justly fall? For the common theory of rotation explains the actual phenomena satisfactorily, and neither hypothesis is evidence either way. Your objection, that the Moon is not an oblate spheroid, somewhat surprised me. The centrifugal force acting on the equatorial zone of the Moon's sphere, in consequence of the Moon's monthly rotation, is, if I am not mistaken, so very much less than the centrifugal force which elevates the equatorial zone of the Earth, that no micrometrical measurement could detect the difference between the equatorial and the polar axis of the Moon arising from that cause.

I must confess that I cannot understand your argument, from an orrery so constructed that one ball should pass round another in ten minutes, and rotate on its axis in the same time. I should fancy it would illustrate the common theory.

The analogy of machinery may be incomplete; but I would venture to suggest that no heavenly body rotates without moving through space, and I am not aware of any fixed law requiring the rotation to be in a certain proportion to the diameter of the sphere, or the space described during the time of one rotation. For example, that the Earth should rotate once in describing an arc of 200 diameters. Upon the whole, it is a question about a *word*, and not about a *fact*. If we take a circle of some twenty feet diameter to represent the Earth's orbit, and project upon it the Moon's path, by laying off the angular distance of the Moon from the Sun, for any given month, we shall find the curve which the Moon describes always concave to the Sun; and in describing a certain arc of this orbit, she will have presented every side to the Sun. Now, we can say precisely the same of the Earth. That body describes a

curve always concave to the Sun, and in describing a certain arc of that curve it presents every side to the Sun; the only difference being that the Earth does this in an arc of about 200 terrestrial diameters in length, while the Moon does so in something under 12,000 lunar diameters.

The really interesting question is, Why should the lunar rotation be precisely synchronous with its apparent revolution round the Earth?*

There is no doubt that the centrifugal force of the Moon in her orbit round the Earth is enormously greater than the centrifugal force of the Earth round their common centre, which I take to be a point within the sphere of the Earth, not fixed, but revolving round the Earth's centre; and in examining the amount of centrifugal force and terrestrial attraction on the opposite sides of the Moon, we find the difference so great that it may give rise to an accumulation of matter on the side of the Moon away from the Earth, so as to make the equatorial axis in that direction much longer than the polar axis. Is it possible that the excess of centrifugal force in her orbit, acting on the parts away from the Earth, just equilibrates the centrifugal force of her axial rotation, so as to keep the centre of gravity of the Moon on the other side of the apparent centre of her sphere, and allow an accumulation of atmosphere and fluid and vapour on the side which we never see? This is, I admit, a most interesting inquiry, and I shall rejoice if the discussions which your letters have aroused may lead to the advancement of our knowledge on these points.

I am, Sir, your obedient Servant, J. R. CRAWFORD.

JELINGER SYMONS, Esq.

2, FORRES STREET, EDINBURGH,
April 15th, 1856.

SIR,—As I admire the bold way in which you have stepped forward to denounce the palpable scientific fallacy, which has so long been maintained, and is still clung to, on the pretended rotation of the Moon on her axis, I beg leave to send you the following copy of a letter I addressed to the *Times*, which the Editor has not thought proper to publish; the more unfairly, I think, that he inserted many of those of your opponents, and has thereby left the public to imagine that no man in the kingdom backed your opinion.—I have the honour to be, Sir, your obedient Servant,

JELINGER SYMONS, Esq. G. MACDONELL,
Lieut.-Col., late of 79th Regt.

(*Copy.*)

TO THE EDITOR OF THE "TIMES."

SIR,—As Mr. Jelinger Symons seems to have brought a hornet's nest about his ears, for daring to deny the Moon's rotation on her axis, allow me to suggest to him a different exemplification of his theory. Let him perforate a small ivory ball to represent the Moon, pass a wire through it, and bend this wire into a circle of a foot in diameter, and then push the ball round the circumference. Will there then remain any doubt of her *not* rotating on her axis? The very fact of her ever showing the same face is proof that she does not revolve on her axis. If I turn completely round on my heel, I revolve on my axis, and *you see my back* in the course of the gyration. Whoever saw the back of the Moon? I know well this is heresy to Cambridge Wranglers, and indeed to all astronomers; but I say Mr. Symons is quite right, and if it were not so heterodox, I would say more. G. M.

To this I appended, for the Editor's satisfaction, my signature and rank in the army, as also my address. You are at liberty to make use of this letter in any way you please. G. MACDONELL.

14, GLOUCESTER PLACE, NEW ROAD,
16*th April*, 1856.

SIR,—Having forwarded to the Editor of the *Times* a letter on the subject of the supposed rotation of the Moon, which appears to have been either not worthy of insertion or to have arrived too late, I take the liberty of sending you a copy. My

---

* Naturally enough, for its motion is nearly as if it were fixed to a circular plane, of which the Earth was the centre.—ED. E. J. E.

object in doing so is merely to show that I am one of those who entirely agree in your opinion.

There is a letter in yesterday's *Times*, signed "W. B. D.," in which the writer asks, "Why does the Moon show both her sides to the *Sun?*" How strange that he does not see that the answer must confute his own opinions!

I am, Sir, your most obedient Servant, A. F. MACKINTOSH.

JELINGER SYMONS, Esq.

LONDON, 17*th April*, 1856.

SIR,—It must be admitted that you have received most unfair treatment from those who have professed to answer your letter in the *Times*, on the subject of the Moon's motion; but I think they would have been silenced had you stated that the Moon no more rotated on her axis than St. Paul's on its axis; the fact being, that, according to their notion of the meaning of the expression "rotation on axis," everything that can be imagined on the Earth's surface rotates on its axis, from Mr. Goodeve's head or nose to the Monument, or St. Paul's, or the hippopotamus in the Regent's Park Gardens,—in fact, not only everything on the Earth, but every subdivision to an infinite extent; every grain of sand on the sea-shore, and every part of those grains. They appear also, in their virulence, to have forgotten to *deny* that the Moon *may* have a lesser convexity on this side and a greater on the other; or, in other words, be oblate on this side and prolate on the further; whereas, if it rotate on its axis, properly so called, it should be an oblate spheroid.

The plain question which should be put is this:—Do St. Paul's, the Monument, London Bridge, Snowdon, the Pyramids, the Archbishop of Canterbury, and Cardinal Wiseman, one and all, rotate on their axes?

Wishing you well through the discussion, I am, yours, &c., F. R. A. S.

To J. SYMONS, Esq.

UNITED SERVICE CLUB, PALL MALL,
April 17*th*.

SIR,—I addressed a few lines to the Editor of the *Times* on the subject of the asserted axial rotation of the Moon, containing one of the following arguments, though expressed in different terms:—I propose to show that, presenting the same face to the Earth, she cannot have axial rotation; and also, that a body rotating, like her, round a distant axis, and having, like her, the same face always to it, does not move upon its own axis. Two spheres in contact, and rotating in the same direction on their axes, must alter the position of their surfaces relatively to each other; but they may rotate round a distant axis, and not alter them. Let there be another Moon in contact with the Moon, having the same motion as she has, and they may rotate round a distant axis, and present always the same face to it, which they could not do if they rotated on their axes. For, let A B be a straight line passing through the point of contact, and extending (at right angles) to their axes. If they have axial rotation, the line A B is broken into A D and B C, and the points of intersection, F G, which are the centre of the Moon's face, as presented to the Earth, are also altered; but as the face presented to us is always the same, it follows that she has not axial rotation.

Again, place a globe upon the Earth's equator, it will rotate on the Earth's axis, presenting always the same face to it; and presenting all sides successively to the Sun, as the Moon does; yet it does not rotate upon its own axis. This is true of every particle of matter of which the Earth is composed, except those which are on the line of its axis, obviously.

If you perceive any error in these arguments, and will communicate it, you will very much oblige your obedient Servant,

CHARLES AGNEW, *Major*.

8, CUMBERLAND MARKET, REGENT'S PARK, LONDON,
April 18*th*, 1856.

SIR,—It is with considerable diffidence that I now address you on the subject of the Moon's motion, as I am neither astronomer nor mathematician, but simply a mechanic, and that in not a very learned sense. When, however, I read your first letter in the *Times*, and bestowed a little thought on the subject of it, I thought it was the result of discernment when I acquiesced in the position you took; and the subsequent cor-

respondence which has taken place has by no means caused me to change my opinion. It was not, however, to tell you this that I have written to you, but to bring before your notice (if you have not detected it already) a singular contradiction which occurs in Dr. Lardner's "Museum of Science and Art," upon this very subject. In No. 28, "The Moon," occurs the following passage:—"While the Moon moves around the Earth, we find, by observation of its appearance, that the same hemisphere is always turned towards us. . . . Now, in order that a globe which revolves around a centre should turn continually the same hemisphere toward that centre, it is necessary that it should make one revolution upon its axis in the time it takes so to revolve. For, let us suppose that, in any one position, it has the centre round which it revolves north of it, the hemisphere turned towards the centre is turned towards the north. After it makes a quarter revolution, the centre is to the west of it, and the hemisphere which was previously turned to the north must now be turned to the west. . . . . As the same hemisphere is successively turned to all points of the compass in one revolution, it is evident that the globe itself must make one revolution on its axis in that time."—Paragraph 5. In this passage, the generally received opinion is attempted to be proved; but turn to No. 1, "The Planets," paragraph 18, he says,—"No law of matter would have prevented the Earth from receiving any other rate of rotation more or less rapid. *It might have made a* SINGLE *rotation a year, in which case the alternations of day and night would have been six months*, or," &c. Now, this is, I apprehend, the very result you affirm would take place did the Moon rotate once on its axis during its revolution round the Earth, allowing of course that the Earth would not cause day and night. This, then, is directly the opposite of what he says in No. 28; it is impossible that both can be right. The only effect that can be produced by rotation on its axis seems to me to be this which Dr. Lardner here says. This I thought might not be altogether unworthy of your notice, the more especially as Sir David Brewster calls his work "accurate."

I hope you will pardon me for saying a word or two on the means by which I have attempted to describe the Moon's motion. I have drawn a rough diagram, illustrating my idea. I supposed that a point, anywhere but in the axis of a globe which has both circular and rotating motions, would have two motions; but in the case of the Moon, no point on its surface has two motions. A point on its equator, nearest the Earth, moves through less space than any other point on its surface, and preserves uniformly that position; while a point exactly opposite it, on the outer side, uniformly passes through a space equal to two circumferences of the Moon more than the inner point; and the centre has an acceleration of one circumference. This proportional increase of speed destroys the necessity for axial motion. Another method of testing the existence of this second motion was, by supposing two Moons formed in the diameter of the larger one. I conclude, that if there were any motion on their axes, there would be a rubbing, of necessity, of the two surfaces which were in contact; this of course is not the case, and hence I would argue no axial rotation.

The great mistake seems to be in placing the Moon in the same category with the planets. Dr. Lardner may very justly say, in regard to the Earth, that no law of matter would have prevented it having a different rate of rotation, that not agreeing in any way with its motion round the Sun. But he cannot say that of the Moon; we may regard the motion of the Earth on its axis as directly emanating from Divine beneficence, to fit the Earth for man; but I apprehend the law of gravitation must have to do with the motion of the Moon. It is too much to suppose that the Moon has an independent motion on its axis identical with that on its orbit; such an exactness does not exist with any of the planets in regard to the Sun. It would appear to me, then, that the motion of the Moon is due entirely to centripetal and centrifugal motion, acting on a body whose centre of gravity is not in its centre. One difficulty, however, remains: How does this theory agree with the statement of Dr. Lardner, that the Moon's axis inclines five degrees? I would have supposed that it would have been exactly at right angles with the plane of its orbit. Here, Sir, I am reminded how little I know, and that, presuming you have read thus far, I may have been wasting valuable time. Pray pardon my boldness in having thus addressed you, and believe that it is not to thrust myself upon you, but merely to bring to your notice that which is to be found in that certainly useful work, on the question, so contradictory. You have my thanks at least for your publication of your ideas on this interesting subject.—I remain, Sir, your obliged Servant,

MATTHEW KER.

Mr. J. SYMONS.

APPRENTICE SCHOOL, H.M. DOCKYARD, PEMBROKE DOCK,
18*th April*, 1856.

SIR,—May I be permitted to congratulate you on your truly important exposure of a fallacy by which the greatest philosophers have been deceived?

I also at first believed you mistaken, but the following considerations irresistibly prove that you are in the right.

The Earth's period of axial rotation is universally allowed to be the time which elapses between two presentations of any meridian towards *the Sun's centre*, instead of towards *a fixed point in space*, as a star,—the difference being nearly four minutes. On this principle, it is clear that the Moon can have no rotary motion on its axis, the same meridian being constantly directed *to the centre of the Earth*.

No experiment can controvert this view of the case.—I have the honour to be, Sir, your most obedient Servant,

SAMUEL A. GOOD.

JELINGER SYMONS, Esq.

CLEVEDON, SOMERSETSHIRE,
Saturday, April 19*th*.

SIR,—I take the liberty of sending you a line to say, that immediately after seeing the attack of the first seven letters against you, I wrote a letter to the *Times*, in support of your view, adding such fresh arguments as occurred to me, and observing that this was by no means the only case in which a vague and inaccurate mode of expression had led the astronomers into error.

I see by to-day's paper an eleventh hostile letter (that from Mr. Hopkins), and cannot but wonder how it is that the *Times* should choose to be so unfair towards you as not to give any letter on your side except your own—for, of course, they must have had many.

I have written, lately, a work on the "Scientific Certainties connected with Planetary Life," and earlier, a work on the "Nature and Elements of the External World;" so that I have an interest in not appearing to disadvantage before the public, yet I have no objection to its being known that my opinion is the same as yours.

I gave my name to the *Times*, and should have no objection to repeat my letter if you saw any use in it; nor should I object to your using my name if you wish.

If the Earth kept one of its poles constantly directed towards the Sun, during its whole revolution in its orbit, it would thereby have, in one sense, an annual rotation on its axis as well as a diurnal one—the one rotation on one axis, the other on another axis; yet it is very evident that no astronomer would speak of its having more than one rotation on its axis; and so also if the Moon had one of its poles in the centre of its disc, so that we could *see* a rotation on its axis, lasting the same time as her revolution round the Earth, it is clear that the Wranglers and Professors who now attack you would then see a great impropriety in their present application of the term rotation.

Trusting that you will resolutely persevere, I am, Sir, your obedient Servant,

T. C. SIMON.

Since these letters were written, Mr. *W*. Hopkins, a gentleman who was Seventh Wrangler in 1827, and who "coaches" aspirants for the Tripos with great success, wrote an angry letter, expressing his "scientific horror" of Mr. Symons's views, in the *Times* of the 19th ult., and affirming, that since the Moon, as that gentleman states, turns round the Earth, presenting the same hemisphere always to it, that *is* rotation round *her own* axis! Mr. Symons replied in the next *Times* in a caustic letter, which his adherents conceive demolishes this statement, and proves conclusively that it is a complete misuse of geometrical terms to apply the term axial rotation to any revolution of a sphere which has not the centre of rotation within it. Mr. S. also describes the difference between lunar orbital revolution and axial rotation in the *Spectator* thus:—"In the former, no point in the hemisphere of the Moon nearest the Earth ever revolves round her centre; and all points in her body describe concentric rings round the earth: in axial rotation, every point rotates round the centre of the revolving body, and none form concentric rings round the Earth."

We reserve further remarks, and a shoal of letters, till our next.

METHOD OF TEACHING SINGING IN SCHOOLS.

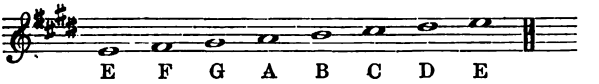
GENERAL PRINCIPLES OF A RATIONAL METHOD.—*Continued.*

III. ALL the most usual major scales should be equally practised. There are two reasons for this principle.

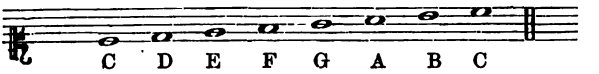
The first reason is that, taking only the most usual scales, there is about as much vocal music written in one scale as in another. One would think, from the proportional amount of attention frequently bestowed by teachers on the several scales, that by far the largest quantity of vocal music was written in the natural scale, the next largest (although little by comparison) in that of G, the next in F, and so on. Now every musician knows that this is not the case; indeed, that it is very far from being the case. It is immaterial, in this connection, to inquire in what proportions vocal music does occur in the various scales, although that might be determined with tolerable certainty even on *à priori* grounds. It suffices here to say, that there is no such preponderance in the case of any one scale as to warrant us in devoting more time to it than to the others.

The second reason for this principle is, that the scales are all equally simple *in themselves*, being repetitions of the same type. Their apparent difference in point of difficulty is entirely attributable to the different degrees of complexity in their signatures; that is, the difficulty lies in comprehending the notation by which they are ordinarily represented. This may at once be perceived by supposing that some other scale than C, say, for example, E, were the natural scale: the scale of E, which, with its present signature of four sharps, is looked upon by the learner as very difficult, would then be entirely free from these puzzling signs, and as easy to him as the scale of C now is. It happens that the very positions which are occupied on our treble staff by the notes of the scale of E are occupied by the notes of the natural scale on the corresponding staff of the Germans, who for the most part still retain the old soprano clef. This will be seen from the following illustration (Fig. 1):—

FIG. 1.—SCALE OF E ON ENGLISH TREBLE STAFF.



NATURAL SCALE ON GERMAN SOPRANO STAFF.



And it is obvious that, by varying the position of the clef, we could make the degrees at present occupied by any one of the sharp or flat scales to be those of the natural scale; and, when this was done, there would be no difficulty in reading the scale, for there would be no signature to disguise it. But this *is* done in effect by the employment of the *same names* for the notes of all the scales; and, therefore, with this expedient, *the signatures are totally unnecessary:* all that the learner requires to know, in this as in the former case, is the place of the key-note, which can be stated by means of ordinary language, or otherwise intelligibly

indicated. The names are a sufficient guide to the intervals. These are measured simply by finding the *relative positions* which their extremes occupy when referred to the key-note; for which purpose it is only necessary to count the degrees of the staff. When the relative positions of the extremes have been determined, and the general names applied to them accordingly, those names at once indicate the intervals on the common standard adopted for all the scales. Thus, so long as sounds are sung by their relative pitch, the sharps and flats of the signatures are of no use whatever; it is only when they are sung by their absolute pitch that it is necessary to know these signs. This plan of dispensing with the signatures in the early stages of the instruction has been carried out by M. Weber, in the singing method which has been adapted to English use by Mr. Unwin; and we consider it one of the most original and valuable features in that excellent work. M. Weber indicates the place of the key-note, when it stands on a line, by thickening that line throughout the piece of music, and, when it stands in a space, by marking that space at the commencement: a very good plan whenever it is practicable, as it calls into requisition the powerful assistance of the eye.

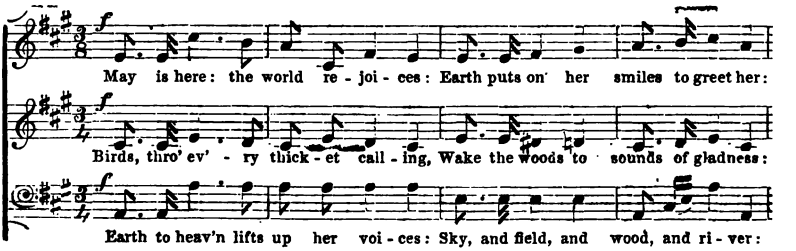
The same object is attained by the ingenious device of a literal notation, in the method of Miss Glover and the Reverend John Curwen, which, in the recognition of sound principles of musical science, especially the great fundamental principle of key-relationship, appears to us to be in advance of all other English methods. The literal notation consists of the movable names dissociated from musical notes. The following illustration (Fig. 2), which is copied from the *Tonic Sol-fa Reporter* for January, 1855, may be interesting to the reader who is unacquainted with this notation:—

FIG. 2.—MAY SONG. KEY A. M. 88.

AIR	s, .,s, :m :-.r	d .m, :l, :s,	s, .,s, :l, :t,	d .,r :m :d
1 v.	May is here: the	world re - joi - ces:	Earth puts on her	smiles to greet her:
SECOND	m, .,m, :s, :-.f,	m, .s, :f, :m,	s, .,s, :tu, :f,	m, .,f :s, :m,
2 v.	Birds, thro' ev' - ry	thick-et call - ing,	Wake the woods to	sounds of glad-ness:
BASS	d, .,d, :d :-.d	d .d :d :d	s, .,s, :s, :s,	d,.m,.s,:d :d,
3 v.	Earth to heav'n lifts	up her voi - ces:	Sky, and field, and	wood, and riv - er:

We subjoin the same passage in the musical notation (Fig. 3):—

FIG. 3.—MAY SONG.



Thus the literal notation dispenses, not only with the signatures, but with the entire musical notation, excepting only the bars. The one general scale is completely abstracted from the representation of diversity of absolute pitch; and the relative heights of the sounds of this scale are

taught by means of a large diagram, which the pupils are supposed to have always present to their minds in deciphering the notation. There can be no doubt that the object is effectually attained by this expedient; but the pupils must come sooner or later to the musical staff; and therefore, if the same object can be equally well attained by employing the staff at once, such a course is obviously preferable; and we think it may be by the expedient which we have recommended.

IV. The exercises practised at first, and for a considerable time, should be entirely free from chromatic notes, and from modulation.

It is of first importance that the pupil should have a very clear impression of the major scale—the principal elemental form of the whole structure of music, and the foundation of the whole system of the instruction. He must be made thoroughly familiar, both theoretically and practically, with its sounds and intervals, in their relation and order of succession. The introduction of extraneous sounds and intervals, which would obviously tend to confuse or to weaken the impression, must therefore be carefully avoided at the outset.

The next important thing is, that the pupil should realize the fact that all the various scales are but repetitions of this form at different pitches of the voice. Now, in order that he may do this, it is obviously necessary that the music selected for the practice of any particular scale, in the commencement, should be wholly and solely in that scale. When he has learned to sing in the scales separately, and has fully gained the impression of their similarity, then, but not till then, will it be reasonable to set him to sing music in which two or more scales are combined *secundum artem*, that is, melted into one another with gradations as little perceptible as the skill of the composer can make them.

Important as this principle is, we know of no method, excepting those of Mr. Curwen and Messrs. Turle and Taylor, in which it appears to be fully recognized. Open most manuals, and you find, either that the chromatic notes are explained near the commencement, or else that some of the first exercises in the sharp and flat scales contain modulations, or perhaps both. In one method, the chromatic notes are explained as early as in the fourth lesson. In another, a tune which is given for practice in seven different scales, in order to exemplify their similarity, has been *purposely* and, we grant, ingeniously constructed to exhibit the two primary modulations (into the dominant and the sub-dominant). It is intended, we are told, to serve "as a *preparation* for every scale," but in every case the exercise (in the same scale) which immediately succeeds it is simpler than itself, not containing any, or containing only one modulation. That is "preparation" with a vengeance.

It is particularly important that this principle should be acted upon by the teachers of our primary schools, because many of the children may not remain long enough to go through the whole of even an elementary course of instruction in this subject. If the teacher of such a school will endeavour to accomplish the object of enabling his pupils to read simple music (that is music free from chromatic notes and modulation) in all the most frequent scales, before he attempts anything beyond this with them, then those pupils who remain only part of the course will at least have a chance of mastering a certain integral portion of the subject. Indeed, in the present condition of our primary schools, if the teachers were to accomplish this object, and nothing more, with the scholars generally,

they would impart to these an amount of skill in deciphering written music which in itself would be a most valuable acquirement, and which, being complete and vital, though rudimentary, could not fail to lead in many instances to its own development.

There is no deficiency of sufficiently simple secular music suited to school children. In most collections of school songs, about one-half of the number of pieces (sometimes more and sometimes less) are totally free from both chromatic notes and modulation. We have taken the pains to count the number of such pieces in the collections of which we happen to possess copies, and we have found the following results :—

Crampton's School Pieces,—Part I.	12	out of	36	pieces.
Crampton's School Pieces,—Part II.	6	„	28	„
Hickson's First Class Tune Book	25	„	33	„
Hickson's Second Class Tune Book	20	„	43	„
Hullah's School Songs	3	„	12	„
Mainzer's Music Book for the Young	29	„	47	„
Mason's (Lowel) Juvenile Songster	28	„	33	„
Novello's School Round Book	27	„	50	„
Silcher's Forty-eight Melodies for Youth	10	„	48	„
Tilleard's Collection of Secular Music for the use of Schools	30	„	54	„
Vocal Music for Equal Voices	47	„	70	„

The quantity of sacred music of the requisite degree of simplicity is smaller ; but still there is quite enough to form a class by itself. There is a considerable number of psalm and hymn tunes, a large proportion of the single chants for the psalms, and many of the double chants.

This class of music includes most of those tunes, both sacred and secular, which are universal favorites. Among the sacred tunes are the Old Hundredth, the Advent Hymn, the Evening Hymn (as originally written), and the Vesper Hymn, Irish tune, and some other fine old psalm tunes. Among the secular tunes are, "God save the Queen," "Britons, arise," "The British Grenadier," "Scots wha hae," "Bonnie Dundee," and other national songs, besides several of the most popular ballads of each of the Three Kingdoms. Tunes which attain to such general popularity are necessarily characterized by simplicity and unity of effect.

V. The common nomenclature of the scales is inapplicable to tunes in which modulation occurs.

The object of the common nomenclature is, as we have already shown, to enable the pupil to recognize the *separate* scales as similar structures. This it effects by always calling up the same natural and well-defined series of ratios upon a given sound, as a basis or root, the moment that sound is selected and the initial name applied to it. So long, therefore, as the ear depends upon the names for suggesting the sounds, it is absolutely necessary that it should have a very distinct impression of the key-note, the foundation of the whole system. This lost, the whole of the ratios are lost with it. The ear is adrift at sea ; nor will it get into course again, until the position of the key-note has again been fixed.

But in a modulation the key-note changes, and the ear is sure to be thrown out in this manner. To ask the pupil to guide his ear by finding

out the new key-note, and changing the application of the syllables accordingly, is absurd, for three several reasons :—

First. It is asking him to do a thing which, as every singer knows, the ear is not capable of doing; namely, to change *suddenly* the impression of the key-note.

Secondly. It is defeating the very purpose of the modulation, which is to bring the ear *gradually* to the impression of a new key-note.

Thirdly. It is requiring of a mere beginner *all the knowledge of the doctrine of progression which is attainable by a scientific musician,* AND A LITTLE MORE BESIDES.

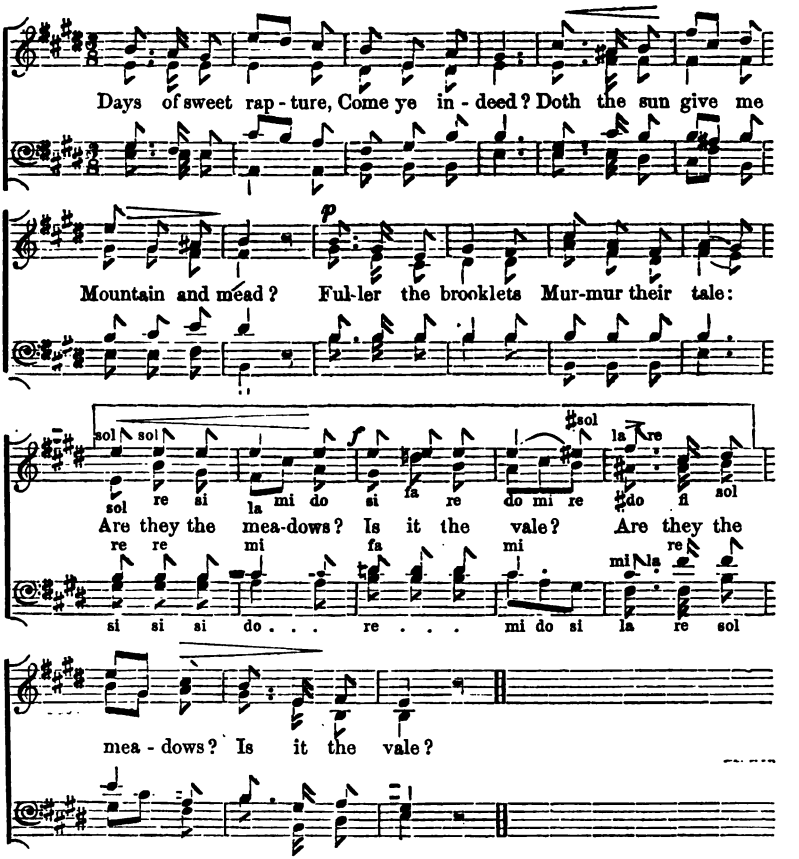
1. It requires that he should understand the scales, not only individually, but in their connection. This involves an acquaintance with them, as consisting, not of relative, but of absolute sounds; that is, an acquaintance with the whole system of scales in their development from one another upon the tetrachordal plan. But the difficulty of making this matter comprehensible to children is the very reason why we adopt the expedient of employing the movable names for the scales at the outset; and when the pupils have gained this knowledge, there is no longer any necessity for employing the movable names at all.

2. It also requires that the pupil should be able say precisely at what point in a given modulation the one scale leaves off and the other begins. Now this, being contrary to the very nature of a modulation, it is utterly impossible that anybody should know, in the majority of cases. It will readily be understood, even by a person unacquainted with the science, that in every skilful modulation there are certain notes which are common to both the scales, and which cannot be assigned to one or other scale without destroying the impression of this common character, upon which the composer relies for producing an easy and natural transition. The very ambiguity of such sounds, by the suspense in which it keeps the ear for a time, heightens the pleasure which is felt when the ambiguity is cleared up by the final triumph of the new principal note. To assign a definite character to such notes, is obviously to defeat the design of the composer, and to destroy the pleasure of the singer. The more skilful the modulation is, the more difficult it is to fix the line of demarcation between the two scales. As Mr. Murby said, in a lecture on musical instruction lately delivered before the United Association of Schoolmasters,—borrowing an illustration from a sister art,—the tyro in painting depicts everything in full color; but the ambition of the developed artist is to make his tints pass off into one another by imperceptible gradations, so that no observer can say where one ends and another commences. And it is the same in music. So that the best modulations are the worst for the application of this plan of reading; in other words, the difficulty of applying the syllables increases in proportion to the excellence of the modulation, while the facility of singing such passages is in the contrary ratio.

As a necessary consequence, teachers who adopt this plan have always themselves to mark the passages of modulation in the exercises practised by their pupils. To show the futility of any such attempt, even when made by the most skilful teacher, we subjoin a comparatively simple part song, containing a passage of modulation, as it was actually marked by an able teacher of singing, for the guidance of his pupils (Fig. 4). The scientific musician will perceive at once that the designation of the

sounds of the passage on this plan would furnish ground for endless dispute, but that no satisfactory solution of the problem could by possibility be attained.

FIG. 4.—EARLY SPRING.



This is the point at which, as it appears to our judgment, all the methods which employ the movable solfa syllables go wrong: they carry the expedient beyond the just limits of its application. Within the sphere of each separate system of ratios, the movable names, which represent those ratios generally, may be employed with strict scientific accuracy and great practical advantage; but their employment in a passage of sounds effecting a transition from any one system to another, is unscientific and impracticable. It is chiefly the want of a clear perception of the proper sphere for the application of the expedient which has caused so much difference of opinion in regard to its merits; for even those who most strongly condemn the *syllables* on account of their inapplicability to passages of modulation,—for instance, Messrs. Turle and Taylor,—make use of the *numerals* for the very same purpose, only in this case the movable names are *necessarily* confined within their proper limits.

J. T.

(To be continued.)

LOCAL WORDS.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—The subjoined is a list of *local words* used in Lincolnshire.

Yours, &c., RICHARD DES FORGES.

Goodnestone, Kent, March 20th, 1856.

Airiff, a long slender plant, having the leaves in whorls, a square stem, fibrous root, and seed like small shot; very troublesome in corn-fields.
Bairn, a child.
Battletwig, an earwig.
Beck, a brook.
Blether, a bladder.
Boond, to repair the public roads.
Bumbles, the rushes of chair-bottoms.
Cade, a pet.
Caulk, very hard chalk.
Chap, a fellow, as 'you chaps.'
Cletch, a brood.
Clinker, a big nail, used round the soles of shoes.
Cob, the stone of fruit, as of a plum.
Crawk, the core of an apple, &c.
Crew, a yard in which oxen, &c. are kept in winter, near a barn.
Crook, a hook on which a gate, &c. hangs.
Cuts, a timber-carriage.
Dab, a child's pinafore.
Darn, a jamb, as a door-darn.
Deary, very little (used with *little*, and sometimes with other words, as a little *deary* bit, a tiny deary).
Dyke, a pond or ditch.
Easks, easkins, eaves of a house.
Eddish, new grass which grows after the meadow has been mowed for hay.
Erning, rennet.
Fadge, a wide bag for chaff, &c., larger than a sack.
Fore-elders, ancestors.
Fra, from.
Furbill, a bill for cutting wood.
Gablick, a crowbar, or an iron bar for making holes in the ground.
Gain, near (comp. *gainer*).
Gallowbalk, a beam to which pot-hooks are fixed.
Gnag, to gnaw.
Heppen, clever in the use of a tool.
Hing, to hang.
Holt, a small wood.
Hopple, to tie the legs together.
Hopples, used for tying the legs.
Hover, a narrow piece of land on which grass grows, near the fence of a field, a bank.
Kid, a fagot or a bundle of wood, with one, two, or more binders around it. Kids are set upright for the fence of a cattle-yard.
Knacker, a person who mends the harness of horses.
Lether, a ladder, also to beat or flog.
Lig, to lie down.
Ling, a kind of heath used for brooms.
Lopper'd, milk curdled by being sour.
Lop, a flea.
Mōn't, may not.
Mulfer, the effect of wearing too many clothes in warm weather, as, this coat 'mulfers' me.
Mun, may, as I mun, he mun.
Nangnails, corns on the feet.
Pad, a path, as a foot-'pad,' for foot-path.
Pancheon, a milk-pan.
Parlour, a bedroom below stairs.
Piewipe, a pewit, a lapwing.
Pilling, the peel of anything.
Pinder, one who has the care of a 'pinfold.'
Pinfold, a fold for inclosing stray cattle.
Pingle, a paddock or small pasture.
Pur, to stir the fire, also the poker.
Quire (pron. *quere*), the chancel of a church.
Ramper, a road.

Recking-hooks, pot-hooks, or pot-hangers.
Reckling, the weakest animal in lot.
Remble, to move a thing from its place.
Rig, a ridge.
Scrub, a small wood.
Seam, lard.
Shim, an agricultural implement, used instead of a plough when the ground only requires to be stirred less perfectly.
Smudge, to blot.
Snare, to lop trees.
Sneck, a latch.
Soah, a tub used for washing.
Spittle, a tool for cleaning a plough.
Spile, a vent-peg.
Spretched, chickens are said to be so when they just break the shell.
Squātche, to put out of shape.
Squiwanack, out of shape.
Steaddle, the bottom of a thing.
Stiddy, an anvil.
Stowk, a shock of corn.
Swap, to barter.
Swath, sward, rind of bacon.
Swathe, a row of grass or corn, as mowed.
Swip, the sails of a windmill.
Wattle, a hurdle.
Wrest, the breast of a plough, the part which moves the earth.
Yax, an axletree.

POSTSCRIPT.

Cardemash, a string used for tying heavy parcels.
Hoveler, a waterman.
Penevers, a word used by boys playing marbles.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—Since my addressing you I have been able to recall to my mind a few other local words used in Lincolnshire. I also send two other lists, one used in Bedfordshire and the other in Kent.—I am, Sir, yours truly,

RICHARD DES FORGES.

Goodnestone, near Wingham, Kent, March 31*st*, 1856.

USED IN LINCOLNSHIRE.

Ax, original pronunciation of *ask* (?) "Either axed other."—*Chambers' Cyclop.* p. 12.
Band, string.
Banker, an excavator, or a "navvy."
Flacket, a wooden bottle.
Hales, the handles of a plough or barrow.
Hog, a sheep in the second year.
Hopper, a seed-basket.
Lanes, an iron by which a plough is drawn, *i.e.* to which the horses are attached.
Marling, tarred string.
Mattle, to agree with.
Mattler, that which matches a thing.
Nudge, to thrust, or a thrust.
Owre, over.
Palm, the catkin of the willow.
Poke, a sack.
Reasty, said of bacon for *rusty*.
Skeith, a sharp wheel used for a plough, instead of a colter, on some soils.
Skelp, to shoot out of cart, &c.
Skep, a measure.
Tipe, same as *skelp*.
Uphold, to think true.
Waps, a fan for winnowing corn when a riddle is used.

USED IN BEDFORDSHIRE.

Aint, is not, *he aint, she aint, it aint.*
Ax, to ask.
Bandy, a game at which a ball or knur is driven about with a bent stick.
Bever, luncheon.

Dan, an offal of meal finer than bran.
Doughnuts, pieces of dough fried in lard, on Shrove-Tuesday, about the size of walnuts.
Flasket, a clothes-basket.
Hot, hit.
Housen, houses.
Hullock, chalk.
Larges.—There is an absurd custom among harvestmen of going round after harvest to beg drink of the farmers in the village in which they have been employed in the harvest, called "larges."
Mungy, or *Muggy*, said of th weather, as in Walker's note under the word.
Sauce, vegetables.
Skep, a basket used for a measure.
Teg, a sheep in its second year.
Task, to thresh corn.
Tasker, a thresher.
Thetches, tares or vetches.
Unked, very disagreeable, not unlike the use of the word as defined by Walker.
Whacking, a flogging.
Wull, will.

USED IN KENT.

Bowler, a large pebble.
Buck, a kind of ploughshare.
Clevel, a grain of wheat.
Clip, a plate for a shoe, to prevent its wearing so quickly.
Cliver, a weed, called *airiff* in Lincolnshire.
Flead, lard.
Gazel, a black currant.
Grattan, stubble.
Gudgeon, a pivot.
Kimble, half a butter-tub.
Palm, a yew-tree.
Pealer, a crow-bar
Piky, a gipsy.
Sizzen, yeast.
Seasoning, seed-time, sowing.
Shaw, a wash-tub.
Tar-marl, tarred yarn for sewing sacks, &c.
Teem, to empty.
Thrushel, a threshold.
Topping, a tuft on the head of a fowl, &c.
Toppled, having a tuft on the head.
Tray, a hurdle.
Tumbrel, a kind of manger in a yard.
Unheppen, awkward.
Vartual, an iron fixed in a gate and by which the gate hangs on the hook.
Welsh, a part of a building called a leawt by builders.
Wemble, to turn over, or turn up.
Whallop, to flog.
Wimbeams, beams tying the joists of a roof a little below the ridge.

POSTSCRIPT.

Brig, a bridge.
Cad, carrion.
Dit, to plaster with mud.
Duckery, duck-weed.
Knobble, a knob.
Neb, the bill of a bird.
Reytle, to comb hair.
Royle, to make water muddy, to disturb the temper.
Whally, insipid.

APTITUDE FOR TEACHING.—Among other particulars which aptitude for teaching implies, we may mention the communication of any particular piece of instruction, at the time and in the manner in which it is most likely to arrest the attention of the pupil, and to make the most lasting impression upon his mind, and a readiness to suggest, or rather to draw forth from himself, familiar illustrations of every subject adapted to his age and to the circumstances in which he is placed.—*On the Management of Public Schools: from Papers on Popular Education.*

THE EDUCATION OF THE CITIZEN—No. 4.

POPULAR JOURNALS.—*Concluded.*

THOSE extreme democratic principles which menace the political systems of modern states boast two triumphs, at distant periods, amongst two peoples opposed broadly to each other in all the circumstances of race, language, genius, and religion. In both cases, apparently decisive; in both, the event showed them incapable of retaining the field against principles confirmed, or habits formed, by the experience of ages. The throne of the Stuart and the throne of the Capetian fell before the same spirit,—the subversion of each seemed final; upon the site of both arose the iron seat of a military despotism, and the generations that saw the exile hailed the return of the ancient dynasty. But with this order of successive circumstances, so constant in the history of revolutions as to seem to be in the nature of things, the parallel between these great events ceases. Neither the motives nor the scenes, though dramatized upon its model—nor the actors, though their action was studied at its mirrors—of the Revolution, resembled the motives, scenes, or actors of the Great Rebellion. The austere Stuart and the passively-heroic Louis—the spirit of Hampden and Mirabeau—were as remotely akin to each other as the licentious violence of the National Assembly to the grand illegality of the Long Parliament. Nor was the enthusiasm which fed the flagging political zeal of the actors similar, or the springs by which the thinking portion of the nation swayed the material masses to its will the same. The wild frenzy of the "Fifth Monarchy" man brought no lunacy into Westminster Hall like that of Anacharsis Clootz; the fanaticism of the Convention united absurdity with horror,—that of such men as Harrison invested their follies with grandeur, and their crimes with an aspect of dignity. And as it was with those who were the soul, so it was with the multitude who were the muscles and sinews of the struggle. The meanest Roundhead felt that the cause of religion, no less than liberty, was depending upon the keenness of his sword; the *Sans-culottes* warred against the emblems and very name of religion: the one sung the Psalms of David over the fragments of the throne, the other danced the "Carmagnole" over the ruins of all that was ancient in the State or sacred in the Church. Much of the strength of this contrast is due to national temper, to local circumstances, to the almost theoretic character of the wrongs which excited resistance in one case, compared with the tangible and long-endured tyranny of the other: but the distinctive circumstance was this, that political zeal in the first was sustained by religious enthusiasm; in the other, by a zeal hardly less potent—enthusiastic hatred of all religion. It is interesting, and to our purpose, to remark this contrast between continental and insular democracy, perpetuated to our own day; though the first has lost its most repulsive, and the latter its high and redeeming, qualities. Though far removed from the dignity of their puritanical prototypes, our modern republicans retain yet a trace—little more than a trace, perhaps—of that which, fettering his innovating efforts to the bounds of morality, and his outward conduct to the rules of justice and humanity, constituted his dignity when compared with the "possessed" of a revolutionary frenzy, which urged to the violation of both. Our ultra-radicalism,—for which repub-

licanism is not the correct, but the convenient, title,—when of native growth, and not a grotesque parody upon some foreign folly, has seldom been avowedly dissociated from religion; its teachers have seldom proclaimed their unbelief as a recommendation to their disciples' confidence, or declared a part of their mission to be the ridicule of the doctrines and mysteries of the Faith. On the contrary, with as little of its spirit as its avowed enemies might exhibit it is true, they have sought to lend to their cause the strength of its sacred sanction. Sacred institutions, holy offices, and particular doctrines, which excite political rancour or clash with political vagaries, might become the objects of invective; but the demagogue more commonly contrasted these with an erroneous ideal of Christian polity than denied the purity and beauty of the Gospel code. Manchester, in the first days of "radicalism," had its "Marseillaise," and in more recent times the poet's pen aided the pamphleteer in its appeals to the passions of the multitude; but the "Lancashire Hymn" was addressed to the King of Heaven, and the *words* at least of later productions of that character taught the poor and oppressed to regard Him as their protector. We do not pretend that the class beyond which extreme democratic principles—if simple restlessness under control deserves the name—hardly extend, exhibits the evidences of vital religion in any higher degree than its representative class in other commonwealths; but as few will be disposed to deny it a superior standard of morality to any in which the degree of intelligence is the same, we are willing to believe that this superiority is due to the strength, slight as it may be, which the bare respect for religion can contribute to moral sense. Depraved as the population which swarms in the dark places of home heathendom confessedly is, and dim as the degree of light which has penetrated its borders may be,—if there be much apathy, much suspicion and prejudice, there does not seem to be much *antagonistic* ignorance to oppose the sacred message, when that apathy is roused, and those suspicions have been removed. Even amongst the better class, the few hard-handed mechanics, half-educated at the National School, and indoctrinated by the *Reasoner* and the lectures at "National Halls," there are found practical irreligion, some loose morality, and a passive scepticism; but rarely that audacious contempt for the idea of Divine authority—that confident infidelity which is the last sign of a nation upon which the judgments of God are hastening. We have often met with a curious inconsistency in such men as these, which proves how incapable their avowed and cherished opinions are of surmounting the lingering reverence for truths taught in youth, or the effects of habit and example, in the regularity with which their children attend the schools where religion is taught, and the readiness with which they practically admit that errors which *they* despise, it would be good for them to learn.

This opinion we entertain more readily, perhaps, because it is desirable that it should be true; but some evidence of its justice may be adduced from the pages we are noticing. Amidst all the rabid nonsense heaped upon the Church, in common with all other institutions, to gratify the dislike of ignorance for everything that is, the Gospel itself is spared; in all the absurdity and wild abuse levelled against His ministers, the majesty of the Master is unassailed; His precepts, indeed, are turned with an ignorant aim upon the rectitude which vice cannot behold

without the pain of self-rebuke, but their power is recognized by the very act of perversion, and their eternal justice is never openly questioned. We may allow to the workman the perfect knowledge of the material upon which he has to work,—to those who live by pandering to the prejudices and follies of mankind, a keen appreciation of their character; if unscrupulous politicians snatch their tools from the store of the Word, though with as little actual reverence as if from *any* convenient supply, it is because they know that the masses are not proof against their keenness, and yield willingly to their power. Did we find the popular journal scattering a weekly store of unblushing blasphemy, levelling its shafts against the truth as rancorously as against the teachers of truth, denouncing religion itself as superstition and folly, where it now brands the clergy with hypocrisy, we might lose the one bright ray which relieves the darkness of the picture which the pages before us reveal. But as an affectation of prudery implies the presence of those who esteem the modesty of virtue,—as hypocrisy the admiration commanded by the beauty of holiness,—as the existence of any counterfeit pre-supposes the value attached to the sterling original; so the guarded caution with which respect is affected by writers, unrestrained on other subjects by the trammels of decency, by candour, or common sense, to the *idea* of religion, indicates a share of reverence in those to whose tastes they minister, the tender fostering of whose prejudices they study with keenness due to the craft by which they gain their bread.

That it is necessary in illustration of our views, must serve as an apology for the extract following, from the same journal we before quoted. Passages better adapted to our purpose suggested the above remarks; but although of the same order, we prefer to select from a current number, especially as it is more the tone than the matter of these effusions that deserves attention. The subject is the "Morality of the Rulers of Mankind," which the writer describes as utterly debased; and tracing that depravity to the "imperfect development of moral sense in the community," he attributes both this cause and the effect to the faithlessness of the priesthood:—

"The first preachers of Christianity were not afraid or ashamed to rebuke the vices of the mightiest. Wrong they denounced, by whomsoever perpetrated. The rich were in an especial manner the objects of their fierce invective, because they converted into a curse the wealth which nature and Heaven designed for the happiness of mankind. The very reverse of this is the case with the modern propagators of the faith. They have, like the infamous Judge Jeffries, a smooth and rough side to their reverend tongues. With the former they sooth to sleep the consciences of the oppressors; with the latter they lash the poor into remorse for offences involuntarily committed, and cow them into submission to a system of which vice and crime, suffering and degradation, are the natural and inevitable fruit. When preaching to the rulers of the people, the priesthood represent the Deity as a placid and amiable being, who smiles incessantly on the rich, and sends showers and sunshine and plenty, for no other reason than that *the* great ones of the earth should indulge in one uninterrupted revel of sensual enjoyments. On the other hand, the industrial slaves of the earth are told that He is a fierce, frowning, vigilant, and well-nigh implacable tyrant, marking continually the sins of the poor, more especially the sins of rebellion and discontent, which He will not pardon without the most complete and abject humiliation to their rulers and masters. Slaves are strictly prohibited from tracing their miseries to any other source than the wrath of Heaven, kindled by the iniquities of the wretched. The crimes of rulers are utterly ignored."

And so on *ad nauseam.*

Wild nonsense this, but read and approved by thousands. So cunningly is it tempered to popular taste, that it would not be easy to procure an unsold copy on the day following publication. When the Sabbath-bells ring next their unheeded summons to the temple of the God of charity and peace, many a sturdy labourer will sit at his hearth, drinking a new measure of such moral poison, the most fatal effects of which are the steeling of the heart and hardening the forehead against those from whose hands the largest share in his social redemption cannot safely be withdrawn. Yet, with something of the satisfaction of the traveller who, in the darkness of night, imagines peculiar brilliancy in a solitary star, or as a wanderer in the desert would hail with joy the feeblest moss as an evidence of fertility, so we think we discern in this extract, and the conviction is strengthened by many such, a ray of comfort. Though, in effect, as pernicious as the extremest doctrines of atheism, these pages would certainly disavow and retort the charge of simple impiety. It is the priesthood who pervert, not they who assail the Gospel system; its uncorrupted purity would regenerate the earth; to practise its lofty morality would be to "restore all things;" but it is "mockery and sham," *called* Christianity, which is imposed upon mankind. Preserved by this theory, they flutter over the brink, but never plunge into the gulf of blasphemy. Their irreligion takes to itself the form of religion; we doubt not that hundreds are taught to believe themselves Christians on the strength of disbelieving that which *is* to be Christianity. The opinions of the journalist are always the exaggerated opinions of his readers, just as the passions of the actor must reach caricature before they rouse the passions of his audience; we may therefore suppose that what he writes is more impious, or more absurd, than what his readers believe, and that he teaches the utmost it is safe to teach without exciting the disgust and losing the patronage of his subscribers. It is safe, then, to declare that ministers pervert the Gospel for secular purposes; it is not safe to impeach the truth of the Gospel. Though the people are willing to hear the Church reviled, they desire not to hear the Head blasphemed; though they are credulous enough, or ignorant enough, to be persuaded that the clergy are leagued with their imaginary oppressors, they retain a lingering legendary idea that their Master is *their* friend. The paper *sells* by justifying the vices that consume them, by attributing the consequences to the vices of others; but it sells equally by attributing lax morality to clerical unfaithfulness, and, by implication, pointing to the Gospel—interpreted by themselves, it is true—as the remedy for immorality. It would seem, then, that the theory of infidelity is not popular, if its practice is,—that the avowal of irreligion is distasteful to the, practically, most irreligious. Did the masses relish attacks upon divine things as keenly as upon their rulers—were they as pleased with a column of blasphemy as with a column of sedition—or would their circulation be increased by the infusion of a large portion of scepticism—there is nothing apparent in the venal pages, and little, wisely perhaps, in the administration of censorial laws, to hinder them becoming as black with the homilies of atheism as they are with the lessons of bitterness and discontent.

Such is the religious aspect of a large portion of what are socially the lower orders, as presented in the most popular of popular journals; of

their political errors and prejudices we have already treated. If we have cast a relieving light amongst the shadows of a gloomy picture, it is a faint one; and we do so from no desire to extenuate the dismal features, or impugn the faithfulness of the image of those classes as limned by the most skilful novelist, the least hopeful moralist, or as dashed out in raw, literal strokes on the pages of "reports," or in the columns of statistics. It will not lighten the labour, or hasten its completion, to understate its difficulties; but the labour is half done when those difficulties are understood, and the nature of one difficulty we desire to indicate. If infidelity and atheism do not taint the masses to the extent represented, there is that which imposes upon them all their practical effects. When the efforts made to raise them to a more noble standard of morality and intelligence are considered,—even with the allowance that they have been made without union, and occasionally with little wisdom,—it must surprise us that the labour should accumulate upon our hands, that the aggregate of vice and ignorance swells above the ratio of the increase of population. What hinders the progress of the good work? There seems to be a dull *inertia* in the masses which has almost the effect of antagonism to its progress; in that which, above all other labours, needs sympathy between the donor and the recipient of its benefits, there is in one an ardent and increasing zeal, in the other a cold and impassive apathy. "Go and compel them to come in" seems especially applicable to these loiterers on the highway to eternity. Thus, we build the house of God in the crowded neighbourhood, and it stands a monument to charity, but a temple of emptiness; we multiply sittings for the poor, yet the place knows them not. We have ancient city churches with a feeble congregation of drowsy officials and listless paupers attached to the "foundation" by anniversary gratuities, and suburban churches where the popular preacher attracts all classes between the peer and the tradesman, but where the labourer suffers no banishment to the galleries, because he seldom comes within their walls. A prelate, remarkable alike for eloquence and benevolence, might deliver special lectures for working men; but neither the celebrity of the orator nor the prestige of the bishop could fill the benches devoted to working men. And so with less-dignified philanthropists; let them seek to bring these men—we speak of the rule—within the sound of the truth, and they will admit the kindly feeling that suggests the act, perhaps tolerate the absence of their wives from home at the appointed time, or even insist upon the attendance of their children; but for themselves, they have no interest in the matter, and, without treating the attempt with ridicule, permit it to fail with indifference. This is that which hinders the moral growth of such from generation to generation. Too ignorant of the truth to question it, too little trained to reason to be doubting, they simply accord an instinctive reverence for that which they neither feel nor understand, and remain in an indifference which has all the consequences of unbelief. But this indifference is more commonly found in union with a formidable ally. The pages we have quoted contain the political faith of thousands of this class of the community. Great as are the social evils its absurdities engender, its train of moral and spiritual evils are of greater magnitude. It teaches that the ministers of Christ are the creatures of their imaginary oppressors, interested in the existence of a

system of government upon which they affiliate the offspring of improvidence, sloth, error, and intemperance, profiting by the misery their indolence would not, or their foresight could not, avert. Every advance, therefore, made towards them is an arousing of jealousy; every act of generous solicitude for their welfare a kindling of suspicion. The counsels of the highest wisdom are listened to as the sophistries of tyrants; the Gospel, of which they know nothing, is declared to be a perversion of the Gospel; the sympathy of the clergy is an affectation cloaking an interested motive; their pastoral care is a system of espionage; their social position exposes them to the imputation of pride, arrogance, and luxury, which are paralleled—and the parallel is urged from week to week by a malignant mentor—with their own servile position, their penury, and dependence. These prejudices exist even to the hinderance of attempts to extend knowledge of a purely secular character. "For my part," says a writer in the same journal, "I rejoice that Mechanics' Institutions and Public Libraries are, generally speaking, failures." In allusion to one particular failure, in a village not far from the metropolis, he adds:—

"Did the working classes frequent these resorts, and peruse the volumes that encumber their shelves, they would most likely become more slavish and submissive to their task-masters than at present. * * * The mere fact of the 'nobleman of the neighbourhood' being patron, and the 'village squire' president, fully accounts to me for the failure of this rural literary institution. * * * In conclusion, I repeat, that the failure of those educational institutions, controlled by lords, squires, and parsons, is a matter of congratulation rather than of sorrow; for far better is it that a man should remain in blind ignorance than imbibe doctrines that teach him to become a contented, obedient, submissive drudge."

Seen, then, as in a mirror, in the popular journals, the people appear ignorant of those political laws which affect their domestic happiness, and indirectly their moral health—open to the reception of doctrines subversive of all government, dangerous alike to the believer and his fellow-citizens, and defended by a cold indifference, or an array of stubborn prejudices, against the efforts of philanthropy and the influence of religion. For all this, the remedy seems obvious; if ignorance of political economy produce as much misery, and perhaps as much crime, as any form of ignorance, let it have in the education of the citizen the place of necessary science; if political prejudices and fallacies hinder the reception of religious truth, let us communicate the knowledge which will remove them—strike out the fundamental error of the popular creed, which confounds all authority with tyranny, all subordination with slavery, and the natural inequality of property with injustice; and, like a chain shorn through one link, the whole contingency of minor prejudices falls to the ground. We do not wish to depreciate the value of scientific knowledge, still less its teaching, as a means of mental discipline; but we cannot but remark, that while its several branches assume, yearly, a more prominent position in the list of subjects of elementary education, this, which, in our minds, is of more practical importance, is still confined to some half-dozen chapters of a reading-book. If any knowledge is useful to a child, it is surely that of the circumstances of his future existence, of the phenomena to which his civil conduct must be regulated and his domestic life accommodated. Men accommodate their actions to physical laws unconsciously, and may be very tender of their body's health without thinking of their exist-

ence. In this case animal instinct will hardly betray men into error, and rude experience will enable the peasant to avail himself of a natural law as successfully as the philosopher who investigates it. He will remove that which offends his nostrils and infects his dwelling, without reflecting that it evolves sulphuretted hydrogen; fan his decaying embers into flame, unknowing of oxygen; and ventilate his room, if not with the science, with the success of a Reid, without understanding the nature of carbonic acid or the constitution of the atmosphere. But he cannot so easily fall in with the course of social phenomena; his instincts and natural passions are more likely to drive him to their violation than lead him to their observance. Thus, the civil life of a vast number of the working classes is one continual blunder; in ignorance of history, in spite of experience, they periodically rush into combinations of labour against capital, which result as inevitably in their misery and degradation as a revolt against the decrees of nature entails disease and death. Every trade has its legend of the "great strike;" of its obstinacy, its privations, and its failure; yet the experiment awaits only occasion for renewal, there is hardly a conviction of its uselessness, none of its folly. Let labour glut the market—the fall of wages is the crime of capital; let the earth withhold her fruits—scarcity is the guilty act of monopoly; for a very small derangement of some domestic financier's prospects, a minister will be denounced as a villain at the least, and the whole system of government branded as iniquity. Every, the most trivial, circumstance of social existence is thus laden with causes for irritation and discontent. All this might be for the philanthropist, not for the state teacher, to correct, were it not that this gall of political bitterness becomes to ignorant men a preparation for the bond of iniquity, and that this false estimate of their social position suggests to them an excuse for, if it be not a cause of, indolence, vice, and crime.

Of that general indifference to religion which we have described as characteristic of the lower classes, we will not speak. It is a subject of too great importance to be dismissed in the closing lines of a paper, and involving the discussion less of the remedy, upon which there can be no difference of opinion, than of the method of applying it, hardly comes within the design of these papers. We will simply suggest, therefore, as worthy of consideration, whether the ease with which the religious habit is dropped, on the scholar's entering the field of responsible existence, may not be due to some imperfection in the system of religious training, and some defect in the method of communicating religious knowledge.

S. D. W.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—In making a few remarks on the subject of a proposition which I was requested to move, at a meeting of schoolmasters, some months ago, I had no ambition to see my "oration," either entire or mutilated, in the columns of a newspaper,* much less that it should re-appear so prominently in your April number, under the imposing title of "School-Teachers and Committee of Council," honoured, moreover, by the elaborate criticism of your correspondent, the "Practical Teacher." In justice to your readers and myself, I trust you will favour me with space for a few words in explanation. The report which your correspondent quotes, and further mutilates by disintegration, is simply a rough, *imperfect* statement of what really transpired,—enough certainly to puzzle the wits of a genius, such even as the "Practical Teacher," who I hope will discover that "ridiculous inconsistency" stands less in the expression of an honest opinion, entertained by at least nine-tenths of the teachers of England, than in straining to become hypercritical on a loose, inaccurate report taken from a local newspaper. I certainly stated,—"There were two or three matters that looked like grievances to the schoolmaster. It had been held to be a great hardship upon the teachers in this country, that they were deprived of the opportunity of adding to their incomes by private teaching, which privilege was not denied to any other class of society. I trusted the time would come when either a satisfactory reason would be given for this restriction, or the Committee of Council would rescind it altogether. Again, it had been often said,—'As is the master, so is the school.' No doubt the Committee of Council had done much to elevate the schoolmaster, and consequently to promote education, for which great praise was due; yet it would not be bad logic to reason, that if they made the master nothing, they would ultimately bring the school to nothing. Now, it was a notorious fact, that *in the matter of correspondence*, the Committee of Council had made the master a complete nonentity. Hoping, however, for an alteration in these unsatisfactory points, I believed the chief schoolmasters of England were exceedingly grateful to the Committee of Council for much it had done towards promoting education and the welfare of the teacher." Should the perceptive faculties of our "Practical Teacher" experience from the above any sensations of "heat and cold," it can only arise from the habit of his ideas wandering into such extremes, that when, like travellers from opposite climes, they meet in a temperate region, mutually complain, the one of heat, the other of cold. The concluding sentence of our modern critic is, I presume, put forth as an apology for his aberrations, with an intimation that he still desires to "run riot in *his* own way."—I am, Sir, your obedient Servant,

A SCHOOLMASTER.

* It was in "The School and the Teacher," and we remarked that the extracts were correctly made in the letter.—ED. E. J. E.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

ON REVIEWS OF SCHOOL-BOOKS.—SIR: On glancing over the reviews of new books in your last number, I saw a notice of the "Word-builder," by Mr. Parker, of America. I met with a review and criticism of a similar work of his in that excellent, but now defunct periodical, *The Quarterly Journal of Education*, for 1835, which such of your readers as are curious, and possess the book, may refer to. I know nothing of the merits of the book in question; from the specimen you give, it seems but of small value. I cannot but admire the fearless and impartial manner in which you overhaul and dissect our school-books; really they too often stand in need of correction, or, at least, very modified praise, instead of the fulsome flattery which mostly accompanies their review. A favourable review of an indifferent school-book must damage, to a serious extent, the cause of education; as it places such productions on a par with the sound school-books written by able practical men, and frequently causes their exclusion in quarters which are guided in their purchase of school-books by what the magazines say in their favour. A. M.

Notes of New Books.

Madvig's Latin Grammar. Translated by the Rev. George Woods, M.A. Third Edition. Pp. 502. Oxford and London: John Henry and James Parker.

Of a work of this nature, though the original has been and may be attacked or defended, we would speak at present merely with reference to the translator's task. The book is presented to us in intelligible language and excellent typography. The additions appear to have been made with judgment, and (which is not in all books the case) honestly for the purpose of rendering the author's work more complete; not in the excursus form, or with a view to show the superior acuteness of the translator.

Suggestions for an Improved Theory of the Tides. By Lieut. C. Hopkins, R.N. Pp. 44. London: Arthur Hall & Co.

We are certainly disposed to consider Lieut. Hopkins's theory worthy of attention. We cannot expect a principle, at its first development, to serve as a master-key to all phenomena connected with the subject; though much seems to have been done already, by applying it patiently.

Contributions to the Cause of Education. By James Pillans, Esq., Professor of Humanity in the University of Edinburgh. Pp. 591. 1856. London: Longmans.

Professor Pillans's name is honoured by all educationists. The first part of this collection, "containing what pertains to the education of the *many*," though historically interesting, as the anticipation and suggestion of much that has since been realized in education, has not now so practical a bearing as the second part,—"discussions in reference to the education of the *few*." We learn much of the early history and system of the Edinburgh High School, from which many large and apparently unmanageable classical schools in England might take a hint or two.

Mechanical Drawing and the Education of the Hand in Schools for the People: a Letter to the Very Rev. the Dean of Hereford. By W. H. Hyett, Esq., F.R.S. Printed at the United National and Free School, Painswick. Pp. 25. 1856.

That much of the training of the mind can be effected through the training of the hand, is a truth now taking its proper place in education. Mr. Hyett has rendered the cause most essential service; among other things, by the introduction of cheap sets of mathematical instruments into the Painswick school. The experiment has been most successful.

LITTLE BOOKS.

The Sea-side Lesson-book. By H. G. Adams. Pp. 236. (London: Groombridge, 1856.) This is a most useful, and at the same time interesting book; and will, we think, bear out the author's views, that "It may be of service to those for whom it is intended." It is divided into six sections, or chapters, which are classified as follows:—

1. The Mighty Deep. 2. Ships and Boats. 3. Sailors and Fishermen. 4. Fish and Fishing. 5. Crustaceous and Testaceous Animals. 6. Sea-Weeds and Sea-Birds, &c. At the end of each chapter there is a long table of questions, which will materially assist the teacher. The book seems nicely written, and is calculated to interest children. We want books of this kind, adapted to the industrial employment of each locality. Perhaps a little more care is needed to revise some of the nautical terms. For example, "a sheet" is not a sail; but any rope which ties a sail aft horizontally. Sheets, in fact, pull the vessel along; but they never mean anything but ropes. These are small flaws, and any seaman would put all right in half an hour.

The Art of Land Surveying. By John Quested, Surveyor. Third Edition. Pp. 121. (London: Belfe, 1856.) After a rather careful examination, we should say that this work contains, well selected and well arranged, all the knowledge on the subject necessary for those who do not aim at becoming professional surveyors, but merely wish to be able to perform the ordinary operations for themselves. And this is the special object which Mr. Quested has had in view.

Metrical Meditations on the Sacred Book of Canticles. Pp. 183. (London: Wertheim and Macintosh, 1856.) We admire in this little book much power and sweetness, and earnestness without pietism.

The spiritual application of such parts of Holy Scripture as the Book of Canticles is, to our feeling, necessarily personal; and individuals cannot always sympathize with individuals in their *sacra privata.* The passage which follows is from page 19:—

> "But above all, O Christian traveller!
> Remember that the 'footsteps of the flock'
> Tend all one way—all follow in one track,—
> The track the Saviour trod with aching feet,
> And marked it with his blood! He, dying, left
> Holy example as his bright bequest;
> And bears his lambs, and gently leads the weak
> To shades refreshing, and to herbage good."

Les Jeunes Narrateurs. Par Marin de la Voye. Second edition. Pp. 152. (London: Grant & Griffiths, 1856.) Pretty little tales of children and for children. We quite agree with M. de la Voye in the importance he attaches to accuracy in translation, which cannot be too soon insisted upon.

The Inspiration and Authenticity of the Old Testament Scriptures. By the Rev. John Perowne, M.A. Pp. 31. (London: Wertheim and Macintosh.) This little work has been called forth by the recent defence of the historical narratives of Holy Scripture, in which the writer's son, Mr. F. J. S. Perowne, has lately taken part. It is in a form very suitable for general circulation.

The Graduated Series of Copybooks. By Thomas Collinson and William Bailey. (London: Groombridge & Sons.) These copies proceed on the judicious plan of assisting the pupil in the formation of letters, and in gradually diminishing the assistance as he acquires facility in penmanship. The copies are beautifully formed, and we can strongly recommend this useful series.

Manual of Moral Philosophy, for the Use of Schools. By E. R. Humphreys, LL.D., Head Master of Cheltenham Grammar School. With a Preliminary Essay on the Relations of Natural and Revealed Religion. By the Rev. J. E. Riddle, M.A. Pp. 134. (London: Longmans.) We should be glad to welcome a work on this subject, adapted for school use. We do not think, however, that Dr. Humphreys has yet supplied the desideratum of an *introduction,* though we admire his book and its arrangement.

Manual of Educational Requirements necessary for the Civil Service.—The Commissioners' Report on the Examinations for Employment in the Civil Service of the Crown. Reprinted by permission. With a Preface by Richard Dawes, M.A., Dean of Hereford. Pp. 84. (London: Groombridge.) Mr. Dawes has not overrated the value of the above-named document to schoolmasters and parents, as well as to intending candidates. The latter will find information on the nature of the examinations established by the various departments; the former will gather from the Report "what that kind of education is, and in what it consists, which fits youth for those employments in which the middle and lower classes seek a livelihood."

Mr. Dawes puts forward for consideration the value of Euclid as a training for the reasoning powers and accuracy, and advocates strongly modern languages. There is something to blush for in the education of our country, when we see in the Report the number of candidates who have failed in writing, spelling, and arithmetic.

Smith's Dictionary of Greek and Roman Geography. Part XV. Pp. 689—880. (London: Walton & Maberly, and John Murray, April, 1856.) It is announced that this work will be completed in the autumn: it will then, beyond question, take its place as the first of its kind. About 150 pages of the present part are devoted to the article "Roma." When reading it, we forget that we are reading an article in a dictionary; ancient Rome and her ruins are brought before us.

NECESSITY OF PHYSICAL ACCESSES TO MENTAL IMPROVEMENT.—"The next thing to which I would briefly draw your attention, as a means of diminishing cases of sickness among the poor, is the *improvement of their dwellings.* It matters little to say in this case, any more than in the former, that the poor care little or nothing whether their abodes be clean or dirty, dark or light, close or well ventilated, damp or well drained and dry. It is not what they desire, but what is good for them, which ought to be our aim; and although some of the labouring poor may prefer a miserable hovel at a low rent, before a comfortable dwelling, for which they must pay a little more, yet this ought not to be encouraged; and the wages of labour ought to be equal to the decent wants of the labourer, of which this is one. * * * * Let none suppose this to be a matter of little moment,—it is of the greatest. If the lower classes are to be uplifted from their moral degradation, improve their dwellings, insist on those physical arrangements which are indispensable to decency, cleanliness, and health; thus open the way for moral agencies, induce tastes for the beauties of nature, and they will be more disposed and better qualified for the perception of the beauty of holiness. Let a taste be acquired for other pleasures than those of a mere animal kind; let the education of the poor be such as to render them capable of enjoying them; and though I do not say that these necessarily produce true religion in the mind, yet it will be confessed that they are, to say the least, a better preparation for it than the opposite habits of vice and of intemperance."—*From Dean of Hereford's excellent Sermon on the Evils of Indiscriminate Charity.*

Intelligence.

LORD JOHN RUSSELL'S resolutions met with a decisive defeat. It is so obviously premature to attempt a national rate, when the voluntary principle and present system are so capable of extension, that we heartily rejoice at this decision. Besides, what can be unfairer than to saddle a national duty on a section of the community? Nine-tenths of all classes are opposed to any such measure.

The Government have withdrawn their Bill for appointing a Vice-President of Education. There was no occasion to do so. Such a measure *is* needed, *is* popular, and would have been assuredly carried, in spite of Mr. Hadfield's not very formidable opposition.

THE UNITED ASSOCIATION OF SCHOOLMASTERS.

ORDINARY General Meeting, held in St. Martin's Hall, London, on the 5th of April.

The Chair was occupied by Mr. TILLEARD.

Mr. Murby, Teacher of Music in the Borough Road Normal College, read a paper on the Method of Teaching Singing.

Mr. Tate, in moving the thanks of the Meeting to the Lecturer, stated his opinion, that although in scientific subjects first principles should form the basis of all instruction, yet music, like drawing, must be taught from the development of the art, that course being more in accordance with the nature of the subject.

Mr. Simpson considered it the duty of teachers to weigh the subject practically. What was it possible to effect with young children with the limited time at their disposal? Tunes must be taught very early to obtain the necessary attention, without which it were vain to expect a love for the art.

Mr. Bentley spoke favourably of the Tonic Sol-fa method. He had found it better adapted to give children an insight into the principles of music than any other method. He thought that those who had failed with this system had not given it a fair trial, but had turned aside to find a royal road, instead of persevering in the track indicated by Mr. Curwen. The Tonic Sol-fa method was not intended merely to teach tunes, although they were numerously introduced. Mr. Bentley thought that the Lecturer had erred in supposing that a mental effect was attributed to a single sound irrespectively of time. He heartily commended the system to the attention of teachers.

Mr. Burn suggested that a combination of the lineal and literal notations might be useful;—and in general he approved of the system of Mr. Curwen for children.

Mr. Murby, in reply, explained that he never intended to separate the art from the science, principles from practice. He was an advocate for doing well whatever was attempted, and having that little thoroughly understood, so as to lay a solid foundation for future progress.

W. H. SMITH, *Minuting Secretary.*

The next General Meeting will be held in St. Martin's Hall, at 6 o'clock on Saturday, the 3rd of May, when the Rev. C. R. ALFORD, Principal of Highbury Training College, will read a paper on "The Character of the Teaching of our Lord."

Obituary.

BIGGS.—On the 3rd of April, at the Hotwells, Clifton, near Bristol, Mr. Thomas Biggs, late Master of St. George's School, Sheffield.

Notices.

Orders and Advertisements must be sent ONLY *to* MESSRS. GROOMBRIDGE, 5, *Paternoster Row; the latter, from strangers, must be accompanied by a remittance, according to the following scale:—If under* 40 *words,* 4*s.*; *for every additional ten words,* 6*d.*; *a whole page,* £2. 2*s.*; *a half-page, or one column,* £1. 5*s. No deductions are made.*

The JOURNAL *will be sent, free of postage, for one year on receipt of* 6*s.* 6*d., in advance.*

*** *This Journal is now Registered for Transmission to Foreign Countries, if Stamped.*

TO CORRESPONDENTS.

W. S. had better get Lyle's "Government Situations Handbook," Piget, publisher, Aldine Chambers. Write also to Secretary of Civil Service Commission, Westminster. O'Gorman's work is good.

*** Our next will contain far more practical matter. For the future, we shall admit few essays.

DISCIPLINA REDIVIVA—No. 13.

SOME REMARKS ON THE CULTIVATION OF TASTE.—*Continued.*

IN our earlier discussion of taste we have spoken of it in its elements, and in the light of those active qualities of mind with which it is connected. It is a principle of repose in itself; but the way thereto leads through a discipline of active powers, and a replenishment of mental resources. To this view of it our design, as we before remarked, obliges us. "We perceive," says Cousin, "how many conditions are put upon the artist, and we should be dismayed at them if we did not know the number of qualities that Cicero demands for an orator. It is not only necessary that the artist cultivate his reason, his representative faculty, and his sentiment of the beautiful; he is also bound not to neglect the material procedure of his art. In fact, he ought not only to contemplate beauty, but to express it objectively. . . . The artist, in handling matter, makes it give forth the spiritual, whether he employs words, sounds, lines, or colours. Words are the matter of the poet, as sounds are of the musician, as lines are of the architect and of the statuary, and as colours are the matter of the painter. . . . In vain do you mix colours, do you combine sounds, do you arrange lines, if you do not make them *express* something. If you do not know how to work with matter, you can never unfold your ideas. . . . Form and idea, the physical and the moral, the real and the ideal, are the two aspects of art—are the two poles which the artist should touch."

In proof of the distinctive character of true art, we may speak of photography. Photography has a high service to render, but it is not high art; and we mistake its character and its use if we expect from it more than it is qualified to yield. There is no place for spiritual or moral influences in the disposition of the subject. Its portraits seldom please us. They lack ideal (and so far real truth of) character. We have the features conveyed to us; but those features are not the portrait of him whom we know or love as our friend, of him whom we know to be kind, or intellectual, or good, and whose face expresses so much, on every occasion, perhaps, but that unfortunate one on which "the subject" is submitted to the momentary but confounding influence of dazzling light. There is none of that genial influence which resides in the eye and manner of the true artist, and which is calculated to call into expression the highest and best nature of the man. To this expression the genius of the artist can give life and endurance, through the free and conscious medium of true art, whether that art be painting or sculpture; whilst, at the best, the artificial medium of photography must be content with one fixed, and that, by a thousand chances, not an ideal or characteristic expression.

The assertion that photographic portraits will never displace the high art of the painter, is a true one; but it is untrue seriously to allege as the reason for this, the humorous *on dit* of an academician, that "Photography cannot flatter." There is a part for the artist to play in the exhibition of human character which is *spiritual*, and partakes of mind, of genius. An inanimate process will never accomplish what is a prerogative of man as distinct from matter. The light of the sun will never kindle what the fire of genius alone can create and animate. Genius contemplates, arranges, grasps the multiform unity of nature; and living art

expresses that unity in a true but complex ideal—taste accepts and admires the finished work; and so, then, the difference between true art as the work of genius, and the dead cold art which is merely artificial, is in *expression*,—as the sign of all that is involved in the previous processes of mind, and as the adequate manifestation and result of these processes in their highest and most suggestive form to the world. In studying the composition of pictures, or sculpture, or poetry, we try to find out this *ars celata* of the artist; and this is a step in cultivation of the taste, not taste itself, but the process qualifying us for its exercise. In this work we analyze, and construct, and complete, rendering the other half corresponding to the artist's expressed half, according to our several powers and aptness for the task.

And now, then, we may go on to speak of one office of photography, which exalts it to the dignity of an assistant to genius and taste—as the faithful servant of genius, as the convenient ally of taste. It is not in representing living nature in her fitfulness of feature—to this it is not equal—but in copying for us the completed works of great painters, and sculptors, and architects in their exactness (saving colour in the case of painting),—in presenting us with a delineation more accurate, and so fitter for the purposes of study, than any other, that its peculiar value lies.

We have before us beautiful photographic copies of the "Transfiguration" of Raphael, and the "Apollo Belvidere." Each of them is, to a sufficient extent, a faithful representation of the original, so far at least as form and expression are concerned. Each is a *perfect study*, we might almost say an education, in the branch of art which it represents. We will quote a passage from Cousin, in which he gives us Winkelmann's analysis of the latter of these great works. It will explain what is meant by the creative genius of *expression*, as beautifully summed up in the writer's few words of criticism upon the great antiquary's judgment; whilst the analysis itself affords an example of that genius, akin to the creative genius of the artist, of which we have before spoken. "Place yourself before the statue of Apollo, and observe attentively what strikes you in this master-piece. Winkelmann—who was not a metaphysician, but an artist, who was gifted with the highest genius, and who understood the procedure of art—Winkelmann has made an analysis of the Apollo. It is interesting to study this analysis, and perceive by it how physical is blended with spiritual beauty. That which first of all struck Winkelmann was the character of nobleness, pride, and divinity impressed upon every line of the statue. The forehead is that of Jove, whence sprang the goddess of wisdom; it is unchangeably calm: indignation swells the nostrils; scorn rests upon the lips; the attitude of the body, the arms and feet, all proclaim the vanquisher of Python. The tranquil and disdainful joy felt in triumphing over a contemptible enemy, the delight of victory, the slight effort that victory has cost,—these shone forth upon the eyes of Winkelmann from the glorious statue. The analysis of this artist is a hymn to spiritual beauty, but, strange to say, he has not perceived it; he has not seen that all that beauty, whose traits he has collected with such affection, is but the manifestation of an internal beauty, that it was incorporeal beauty which shone through its veil; in a word, that the beauty of the Apollo Belvidere can be summed up in the word *expression*.

Let us pass now from a cold and inanimate statue to a living, real

man. We shall find that the physical can be beautiful only on the condition that it be subservient to moral beauty . . . . . it is not the outline of matter, in regard to pure surface and form, that receives the impress of sublimity; it is matter vivid, alive, that is, expressive matter, matter exhibiting mind throwing aside its enshrouding veil."

For the value of the contrast between the expression of two of the high arts in relation to the same ideal, we quote Byron's lines on the Apollo—

"Or view the lord of the unerring bow,
The god of life, and poesy, and light;
The sun in human limbs array'd, and brow
All radiant from his triumph in the fight;
The shaft hath just been shot—the arrrow bright
With an immortal's vengeance; in his eye
And nostril beautiful disdain, and might,
And majesty, flash their full lightnings by,
Developing, in that one glance, the deity.

"But in his delicate form—a dream of love,
Shaped by some solitary nymph, whose breast
Long'd for a deathless lover from above,
And madden'd in that vision—are express'd
All that ideal beauty ever bless'd,
The mind within it most unearthly mood,
When each conception was a heavenly guest—
A ray of immortality; and stood,
Starlike, around, until they gather'd to a god!

Childe Harold, canto iv.

For the same contrast in relation to painting and poetry, take Mrs. Sigourney's noble description of Leonardo da Vinci's "Last Supper."

Again, compare with the famous statue of "The Dying Gladiator," Byron's picture of the same incident, as drawn in the following "wondrous words of simple English:"—

"I see before me the gladiator lie:
He leans upon his hand—his manly brow
Consents to death, but conquers agony,
And his droop'd head sinks gradually low—
And through his side the last drops, ebbing slow
From the red gash, fall heavy, one by one,
Like the first of a thunder-shower; and now
The arena swims around him—he is gone,
Ere ceased the inhuman shout which hail'd the wretch
who won.

"He heard it, but he heeded not—his eyes
Were with his heart, and that was far away;
He reck'd not of the life he lost, nor prize.
But where his rude hut by the Danube lay,
There were his young barbarians all at play,
There was their Dacian mother—he, their sire,
Butcher'd to make a Roman holiday—
All this rush'd with his blood—shall he expire,
And unavenged? Arise! ye Goths, and glut your ire!"

Childe Harold, canto iv.

To this quotation we would gladly append, if space allowed, Professor Reed's analysis. It is to be found in the 9th chapter of his "English Literature from Chaucer to Tennyson;" a chapter to which we would entreat the attention of every reader of Byron.*

The criticism of genius upon genius presents a legitimate and fruitful field for the cultivation of the taste.† The critical faculty is carried forward and refined, if, at the same time, it sufficiently asserts its own independence. A growing fondness for art, along with a discrimination of the true value of criticisms upon works of art, is a symptom of strength in taste. A dogmatic tone in relation to art may be symptomatic either of extreme enthusiasm or of narrowness of mind. It is unfavourable to the growth of taste. After all, we must, in some degree, defer to the venerable canon,—

"De gustibus non disputandum est."

Let every criticism be well tested by comparison with the object of such criticism, before the sentence be accepted as just. It is a misfortune to us to read a critique upon works of art, before seeing them for ourselves. It insensibly warps our judgment; and if its tone be satirical, the result is painful, as well as hurtful to our freedom of thought. Read *after* such view, critiques are most valuable. Our journals now abound in clever analyses of art, and in criticism which, if not always fair, at least affords matter for careful discrimination. We are presented with an incidental statement of principles, which could hardly under any other circumstances be educed. We have the opportunity of learning and comparing the impressions of others with our own; and comparison is an important element in intellectual growth, as well as in the cultivation of taste.

We had purposed to speak further of sacred art, and to discuss some further points of importance in relation to the influence of art-studies; but want of space brings our paper abruptly to an end. We must therefore be satisfied with having offered some imperfect suggestions upon a subject of deep interest. We beg to state, in conclusion, that this article brings the series entitled "Disciplina Rediviva" to a close. The whole of the papers are now in process of revision, and will shortly be published in a separate volume. It is hoped that in that form, and with the additional matter with which they will be interspersed, they may prove a useful body of suggestions to youths leaving school, for a course of private study. J. S. G.

---

* See also "Jeffrey's Essays" (collected out of the *Edinburgh Review*), pp. 414—416, on "the unhappy tendency of his writings," and "the peculiarity of their corrupting influence."

† Mr. Ruskin's commentary (in the *Times*) on certain pictures by Hunt, a year or two ago, was most interesting, and, perhaps, more instructive than some of his subsequent strictures. These are justly complained of as arbitrary in their character, and as needlessly severe in tone.

LUNAR MOTION.

THE WHOLE ARGUMENT STATED, AND ILLUSTRATED BY DIAGRAMS; WITH LETTERS FROM THE ASTRONOMER ROYAL AND OTHERS.

By Jelinger C. Symons, Esq., B.A.,
One of H.M.'s Inspectors of Schools.

"We should always distinguish facts from assumptions. The experience of past ages is sufficient to show us the wisdom of such a course; and considering the constant tendency of the mind to rest on an assumption, and forget that it is an assumption, in such cases it becomes a prejudice, and inevitably interferes more or less with a clear-sighted judgment."—Faraday.

PART I.

THE discussion respecting the Moon's movement has largely interested the public. It has also placed established opinions on the laws of motion in conflict with some stereotyped astronomical theories. On these grounds alone, I should feel called upon, as the unconscious author of this huge debate, to give the public what I honestly intend to be a plain, and at the same time a full abstract of the whole argument. I was induced, in the first instance, to write a short letter to the *Times*, stating simply my reasons for questioning the orthodox postulate as to the Moon's double motion, by finding two very highly-educated Cambridge men entirely at issue on the subject. I felt, moreover, and have long felt, how seriously education is damaged by the still prevailing habit of cramming learners of all ages, with definitions and dogmas of all kinds, and on nearly all subjects, which are neither adapted to the comprehension of, nor understood by, the great body of the people.

I hold that any man who simplifies knowledge helps education; and that any one—especially if officially bound to further and facilitate it—who omits an opportunity of doing this is to some extent guilty of its hindrances. I have the authority of Dr. Lardner (an experienced lecturer) for my belief, that the established mode of defining the Moon's motion has rendered it exceedingly difficult to give a correct and popular idea of it. And yet this point stands on the threshold of the noble science of Astronomy, the next, in my humble notion, to religion itself, in elevating man's conceptions of the might and majesty of God; the contemplation of which brings the creature nearer to the Creator than any other in the whole category of sciences!

Although I never for an instant contemplated the deluge of discussion which I was reopening on this subject, I cannot say that I lament having done it. It has provoked a great deal of wholesome mental exercise, and will, I have no doubt, end in the accomplishment of my only object—that of removing a serious blot from *educational* astronomical books. This attempt I thought within my province, and the effort to obtain further light on the subject not altogether unpardonable in one who has devoted so much of his life to the practical service of education as I have humbly but earnestly done. The silly insults by which this effort was at first met, by a very few persons, have been sufficiently

rebuked by the kindness and marked courtesy of all really scientific men, who have since corresponded with me on the subject; and by none more so than the Astronomer Royal, whose letters, having obtained his consent, I feel it a duty to the public to lay before them.

The question at issue may be best stated, by citing first a few of the statements of the Moon's motion, by great authorities, to which I have ventured to demur (as many far more scientific men have done before me).

LA PLACE.—"The Moon, in revolving about the Earth, keeps very nearly the same face towards us; which proves that the mean rotatory motion is exactly equal to the motion of revolution, and that the axis of equation is nearly perpendicular to the plane of the Ecliptic."*

WOODHOUSE.—"The same face of the Moon is always turned towards us. This is a curious circumstance; and the immediate inference from it is, that the Moon must revolve round *its* axis with an angular velocity equal to that with which it revolves round the Earth."

PROFESSOR NICOL says,—"The Moon has one very singular feature, apparently belonging essentially to her as a satellite, since it distinguishes every other satellite with which we are sufficiently acquainted. *She rotates on her axis in the same time in which she revolves in her orbit round the Earth,*—in other words, the length of one day and night in that orb is precisely one of our months. *The rotations of Jupiter's satellites also nicely correspond with the periods of their revolution around that planet;* and all we know or suspect of the attendants on Saturn is in obedience to the same law. Why this is so is unknown—it is one of those dark points that stir us to profounder inquiry concerning the scheme in which we are; but it is not difficult to trace some of its effects. *Owing to this arrangement, the Moon always turns the same face towards the Earth.*"

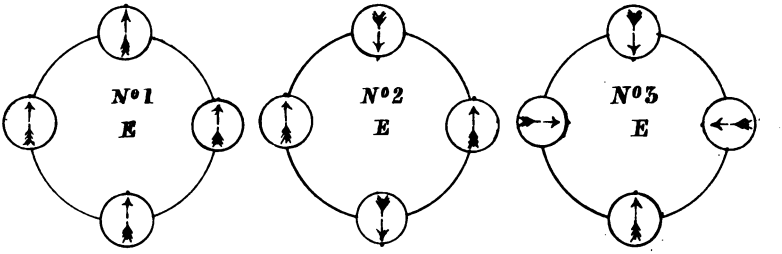
M. D. POISSON, in his *Traité de Mécanique, 2de Edition, tome* ii. *p.* 179—180, uses these words:—"Le mouvement de translation peut être révolution autour d'un autre corps en repos, ou lui-même en mouvement. Il n'y a pas de rotation toutes les fois qu'une face ou une section déterminée du mobile reste constamment parallèle à elle-même; il y a, au contraire, rotation dans le même temps que la révolution, lorsque le mobile tourne constamment la même face vers le corps central. C'est ce second cas qui a lieu dans le mouvement des satellites autour de leurs planètes. La Lune tourne toujours la même face vers la Terre, et le rayon vecteur qui va du centre de la Terre au centre de la Lune rencontre toujours en un même point la surface du satellite; d'où il résulte que la rotation de la Lune sur elle-même, et sa révolution autour de la Terre s'achèvent dans un même temps."

MR. J. R. HIND, in his edition of *Keith Johnston's New Atlas of Astronomy*, says that the Moon "revolves round our globe in a period of 27 days, 7 hours, and 43 minutes, and to rotate upon her axis in precisely the same interval; whence it occurs that only one-half of the Moon can ever be seen from the Earth."

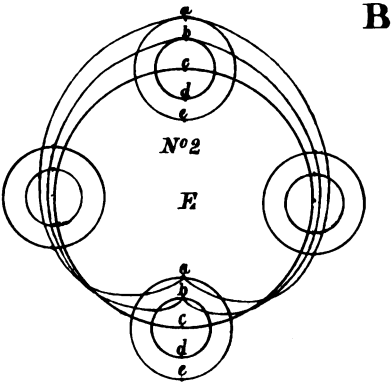
DR. LARDNER has adopted both sides of the dynamical question in the same work,—*The Museum of Science and Art.*—In No. 28, on "The Moon," occurs the following passage:—"While the Moon moves around the Earth, we find, by observation of its appearance, that the same hemisphere is always turned towards us. . . . Now, in order that a globe which revolves around a centre should turn continually the same hemisphere toward that centre, *it is necessary* that it should make one revolution upon its axis in the time it takes so to revolve, &c. . . . . As the same hemisphere is successively turned to all points of the compass in one revolution, it is evident that the globe itself must make one revolution on its axis in that time."—(Para-

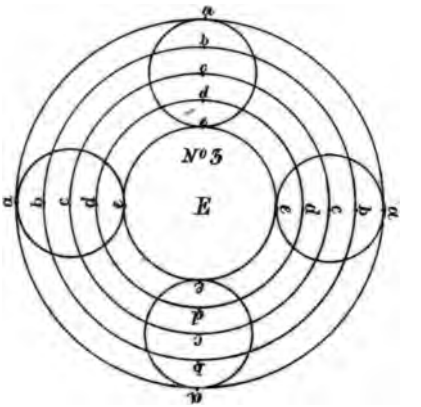
* He also states that the lunar equation is inclined about 278′ [2d. 30m.] to the plane of the Ecliptic, and that the descending node of the lunar Equator always coincides with the ascending node of the lunar orbit.

A.

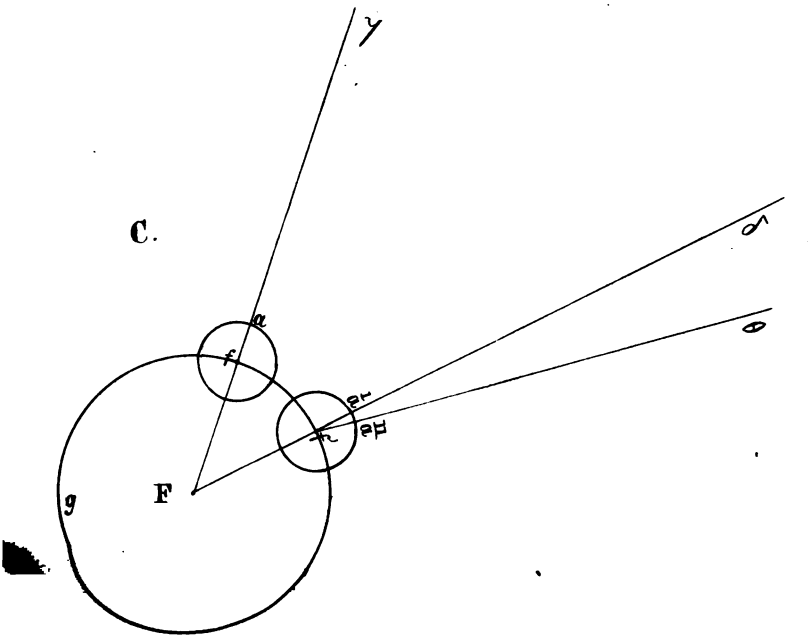

N°1
E
N°2
E
N°3
E

B.


a
b
c
d
e
N°2
E
a
b
c
d
e


a
b
c
d
e
N°3
E
a
b
c
d
e
a
b
c
d
e
a
b
c
d
e

C.


γ
δ
θ
a
f
F
g

graph 5.) In this passage, the generally received opinion is attempted to be proved; but in No. 1, "The Planets," paragraph 18, he says,—"No law of matter would have prevented the Earth from receiving any other rate of rotation more or less rapid. *It might have made a* SINGLE ROTATION *a year; in which case the alternations of day and night would have been six months,* or," &c.

In direct opposition to these statements (save the last), I hold, that though the Moon in her orbital revolution round the Earth, keeps nearly the same face always towards it, she does so because she has no rotation on or round her own axis; that her movement, excepting her librations, of which more presently, is exactly analogous to that of any portion of the outer ring of a wheel; and that inasmuch as the centre of rotation is outside of and distant from the revolving body, it is not only a misnomer to apply the term axial rotation to the lunar movement or mode of revolving, but that axial rotation is, as these astronomers clearly imply, a totally distinct and additional movement having different dynamical forces, and distinguished by different geometrical conditions and phenomena. In other words, and shorter terms, I hold that a body does not rotate round *its own* axis, when that axis is not within it; and that in order that a body should rotate round its own axis, every part of that body must rotate, revolve, or turn round that axis: which is demonstrably not the case with the Moon.

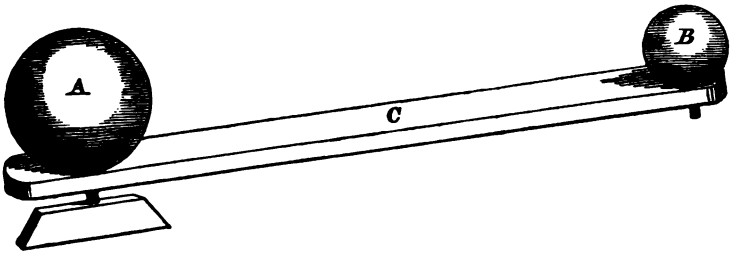
There are *three* distinct modes of motion in which the Moon or any body may revolve.* As a vast deal of this discussion has arisen from the popular misconception that there are but two, I beg to illustrate these three motions by the first set of diagrams (A.) on the opposite page. No. 1 represents such movement as would exist if the Moon always preserved the same face towards any given point of the horizon, in which case she would present all her sides successively to the Earth and to the centre of her orbit. This she does not do. No. 3 presents the Moon keeping the same face towards the Earth and centre of its orbit, without any rotation in addition on her own axis; and No. 2 represents the Moon revolving *and* rotating round her own axis once during one orbital revolution, which is the double motion assigned to her by the authorities above cited; and in which cases she must, as I contend, present all her sides once successively to the Earth during her orbital revolution.

My opponents range themselves in two perfectly distinct classes, and are a house divided against itself: one, the least scientific, standing up manfully for the double movement; others, who may be termed the mathematical men, maintaining the same movement I ascribe to the Moon, but holding with equal confidence that it ought to be termed axial rotation. It is obvious, therefore, that the arguments by which each set of objections are to be met must, like the objections themselves, be strictly distinguished.

It being conceded that the Moon always keeps the same face to the Earth as it revolves round it, it is easy to give two balls exactly such movement as observes these conditions, and therefore so far represents

* To avoid ambiguity and tautology, I shall exclusively use the terms revolve and revolution for circular movements which I deny to be rotation; and rotate and rotation for those which comply with my definitions of rotation round the revolving body's own axis.

the motion of the Moon. Now this may be perfectly accomplished by a simple instrument such as this :—



A represents the Earth, which, as far as affects this question, may be taken as the centre of the Moon's orbit ;* the bar C is simply a means of keeping B, which represents the Moon, in its orbital revolution. B is attached by a pivot or axis to the outer end of C, and C turns on the axis of A : and when moved round *without turning B also* (as far as affects any point in dispute), the ball B correctly represents the Moon's motion by revolving round A, and always presenting the same face, marked ×, towards A.

The number of letters I have received from educated people is almost incredible, insisting upon it, that in order that a ball revolving round a distant centre should present the same face to that centre, it must also twirl round on its own axis, like a teetotum. I have witnessed the astonishment of many such people, to whom this instrument or any similar test has been shown, on discovering their mistake. Let the ball B be now made to twirl or rotate on its own axis ever so little, and it immediately presents a different face to A ; and it is palpable to the senses, that this is a distinct, separate and additional motion given to B. The great majority of those who allow themselves to try this experiment are convinced ; but there are a still larger number who disdain to do it, and simply seek for all kinds of modes of supporting the astronomical axiom, with that peculiarly English idolatry of an established dogma, which reminds one forcibly of Sterne's description of it in "Tristram Shandy." "It is in the nature of an hypothesis, that when a man once begets it, from the hour of its birth, he appropriates to it, as proper nourishment to its growth, everything he sees, reads, or hears for the future. This is very convenient."

The first resource is to lay hold of the rigidity of this or any instrument by which the lunar motion is illustrated. The Moon moves freely in space : the Moon is not connected by a bar to the Earth ; therefore, the instrument misrepresents the state of the facts ; *therefore it fails to prove that she does not rotate on her axis, &c.* This conclusion is an obvious *non sequitur* from the premises. It would be just as sensible to say that the balls are infinitely less than the Earth and Moon, and that therefore they do not represent the facts, and prove nothing. Let it be shown wherein they misrepresent *the motion in dispute :* if they fairly

* These are not quite identical ; the centre of the Moon's orbit, owing to the slight gravitation of the Earth towards the Moon, is near the Earth, but not identical with the Earth's centre.

show it, they do all they are designed to do, and all that it is in the least requisite that they should do for the support of my theory. They illustrate perfectly the dynamical law disputed by the objectors. To make good their objection to the bar, they are bound to show in what respect the bar gives the model of the Moon a different motion to that which the Moon has. The more scientific objectors will reply, that it does not represent the ellipticity of the Moon's orbit. But I do not dispute the ellipticity of the Moon's orbit. They aver that it fails to show the Moon's librations. I admit the Moon's librations. It represents neither of these: but neither is it in the least necessary that it should. It represents and proves the fact that if the Moon or any other globe or body revolve round a distant centre as the Moon does, always presenting or keeping the same face towards that centre, it cannot rotate round its own axis also. This is all I aver; and it is just as irrational to object to a mechanical or rigid illustration of *that* fact, as it would be to object to the resemblance of a portrait, because the person it represented was not, like the picture, composed of canvass and paint.

The non-scientific objectors get into a blunder on this subject, by first convincing themselves correctly that the Moon does not move as in No. 1, Fig. A, and then by jumping to the conclusion incorrectly, that there is no other way in which she can possibly revolve, except by rotating on her own axis: in which case she must present, if she rotate once during her orbital revolution, the motion represented by Fig. 2, turning exactly opposite faces to the Earth at opposite sides of her orbit. If she rotates more slowly or faster, a similar result, different only in degree, will ensue. To prove this by another instrument is, though a little more costly, equally easy. Construct a circular board of a foot diameter, standing on three or four short legs; to a vertical spindle, immovably fixed in the centre, attach a revolving bar similar to C in the above woodcut, so that it may revolve round the spindle as a pivot, with a ball on it to represent the Earth; immediately above the bar fix a cogged wheel of four or five inches diameter, by means of a square socket, on the spindle; at double this distance from the spindle, place another spindle and another cogged wheel of the same dimension and number of cogs on the bar, to play into the central wheel, and so fixed that its spindle may rotate with it; on the top of this spindle place another ball to represent the Moon, so that its equator shall be in the same plane with that of the central ball. If the bar be now moved completely round the wooden disc by its handle or projection, it will be found that the ball representing the Moon complies exactly with the description of the Moon's motion given by the above-cited authorities; it will in precisely the same period as it completes its orbital revolution, have also rotated once on its own axis, and it will by means of this revolution, *plus rotation*, present when it has gone round one-half its orbit the opposite face to that which it presented to the ball in the centre at starting; presenting the same face again as at first on its return to the starting-point; and similarly in succession it will present all its sides during its revolution. Now take the outermost wheel out of gear, so that the Moon's model no longer rotates on its pivot, and it will present the same face to the centre all round its orbit.

Thus the Moon may be demonstrated to have no axial rotation, in the sense in which mankind at large use that term. The theoretical diffi-

culties in comprehending how this should be, vanish on seeing it *done*. I thought I should make this clear, and at any rate provoke the experiment by the letter in the *Times* of the 12th April, in which I said :—

"Arrest the Earth in its revolution round the Sun, and it will still rotate on its axis, for it has axial rotation. Arrest the Moon in her revolution round the Earth, and she will be motionless, because she has no axial rotation. To put this question to a practical test, let an orrery be constructed so that the Moon shall rotate on her axis, as we are told she does, in the same period in which she revolves round the Earth. Let this period be ten minutes. I affirm that at the expiration of five minutes after the orrery is put in motion, the Moon will present to the Earth exactly the opposite hemisphere of her surface to that which she presented to it at starting. If I am right in this, the question is settled, and the Moon has no axial rotation; for at whatever rate she rotates, a similar result will ensue."

This, I know, has convinced many; but a writer signing himself E. B. D. asserted the contrary, whose anonymous insolence would have rendered any further notice of him out of the question, had not the counter-experiment he suggested* been adopted in a modified form by a friend of mine, who is well known as an astronomer, and whose suggestions are entitled to respectful consideration.

This gentleman has constructed a strong flat board, a foot wide, screwed in the middle to a strong vertical axis; at one end of this board, which revolves horizontally, a ball, nine inches in diameter, six or seven pounds in weight, is inserted, so that it can rotate on its own axis, the lower end of which is delicately poised on glass. Having balanced this ball nicely, a "rapid" motion is given to the board; the ball will, Mr. — affirms, "present different sides to the Earth, till the friction of the pivots gradually brings it to present the same face. Then stop the board suddenly, and you will find the Moon spin on its axis, by the rotary motion it has gradually acquired by the action of the said friction, till the friction again conversely reduces it to rest. The first part shows, by simple experiment, that if there be no original rotary movement, and the centre of gravity be made to revolve, different faces will be turned to the centre. The second shows, that when the model Moon is revolving, and at the same time turning the same face to the centre, if it be 'arrested' in its orbit, it will rotate and present different faces."

I have no doubt whatever of the accuracy of this statement, and only wonder that so much ingenuity has been expended in showing what the Moon does *not* do. It being admitted on all hands that she constantly preserves the same face towards the Earth, what possible advantage can there be in experiments which represent *other* motions? While the ball presents the same face to the centre of rotation, this gentleman may

* It was this :—"It [the experiment] will answer perfectly with a mere disc of tin for the Moon, hollowed a little in the middle to make it balance easily on a strong needle, stuck point upwards, near the end of a bar of wood revolving horizontally. You can hold the disc with your finger while you turn the bar, so as to keep some mark upon the disc facing the axis on which the bar turns, and let it go just before you stop the motion of the bar. [If this be done steadily, and without an impetus or jerk, the disc remains motionless on the needle.] In the converse experiment, you have only to turn the bar, leaving the disc alone; and then it will not revolve (except on its orbit), but will present all its circumference in succession to the axis of the bar [It will do exactly the reverse], thus showing that an additional force was necessary to make the Moon turn on its axis besides turning round the Earth."—This experiment has been tried frequently, and entirely confutes the statement it is designed to support.

nail it to the board, without changing its relative position to the centre, and thus satisfy himself it has no rotation on its own pivot. When he "suddenly" arrests the board, the ball no doubt begins to rotate, and it does so from the centrifugal force acting on the ball, with no centripetal force acting in the plane of its orbit to counteract it. It is obvious that the immense power of this and other forces, exercised by the Earth and Sun respectively on the Moon, is the main cause why she preserves the same face towards us, instead of rotating. It is strange, indeed, that the very persons who object to rigid instruments, which really prove that part of the lunar motion they correctly represent, should be the first to resort to them to illustrate that which it is physically certain they must misrepresent.

At least a score of those who dissent from me, and have done me the favour of communicating their grounds of objection, have striven hard to convert me, by means of a variety of demonstrations and diagrams, which go to prove that if the Moon moved out of her orbit at a tangent ever so short a distance, she must then rotate on her axis to get back to her orbit again. I quite admit it: if her orbit, for example, were a polygon, she would have to rotate at every corner; but her orbit is not a polygon, nor does she ever go out of it, and all such demonstrations are futile and beside the question, and prove only what nobody disputes.

Another gentleman, whose name I am not at liberty to mention, has also put, in a more scientific manner, one of the modes of opposing my view first named by one of the *Times*' correspondents. He says:—

"I ask you to *conceive* the Moon's distance from the Earth to be *gradually* diminished, until the two centres coincide. You might say that the 'impenetrability of matter' renders such a coincidence impossible. You *might* say so, but you are too sound a logician to do so. I ask you, therefore, at the same time that the Moon's *angular* motion about the Earth continues as at present, to conceive the distance between the two centres to be gradually lessened, until it becomes absolutely *nil*. Can you fail to recognize, that in this *final* position the Moon will be *rotating* about the *common* axis of itself and the Earth? When did this rotation begin? Had it no existence till the instant when the two centres came together? You cannot suppose such to be the case, if, in your mind's eye, you have distinctly watched the supposed gradual diminution of the lunar orbit. This axial rotation must, therefore, have existed *before* the centres coincided, which was the primary point to be proved."

The argument here is, that because the transition of the movement on separate axes to the movement on the same axis may be imperceptible and impalpable, there is no difference between them. I cannot admit it. There are an infinite number of physical differences, alike in motion and matter, imperceptible not merely to the naked eye, but with the best achromatic microscope. Decimals, carried to the 20th place, will accurately indicate distinct quantities, but of which even the mind cannot appreciate the difference: does it therefore follow that there is no difference? Just as in the case of the polygon, whose sides may be infinitesimally minute, and although altogether undistinguishable from a circle, to the eye, or by measurement, yet utterly distinct from it.

I reserve a definition of the geometrical differences between rotation and lunar revolution till I have cleared the question of unscientific objections. I must also reserve one or two other objections for consideration until I have given Professor Airey's letters, for they touch on some and dispose of others. But I must first endeavour to clear the question of lunar librations, with which it has been embarrassed by Dr. Lardner: a gentleman of whom I desire, nevertheless, to speak with that respect and

gratitude which is due to a man who has done so much to simplify science, and facilitate its comprehension by the people.

Dr. Lardner, in his first letter to the *Times* (dated April 21st), says :—

"That, as my view is in contradiction to the conclusions of all the more eminent astronomers of the present and the last age, and that it relates not to a point of abstruse mathematical physics, but to one depending on the most elementary mechanical principles, it would be wonderful indeed if it were not completely erroneous. Now, although it certainly is so, it is very evident, from the matter of Mr. Symons's letters, as well as from the various answers which they have elicited, that, however universally the Moon's rotation has been admitted, the reasoning by which it has been established still requires elucidation and development before its conclusiveness can be perceived by ordinary minds."

Quite conscious that my mind is of the ordinary stamp, I read the further and more elaborate effort, in Dr. Lardner's second letter, to enlighten it, with an expectation by no means satisfied by the following series of assertions, which, though pronounced *quasi ex cathedrâ*, have, I believe, failed to convince any "ordinary mind" of my error. I have, for the sake of brevity, interspersed comments in brackets :—

"The same hemisphere of the Moon is not always presented to the Earth's centre. [Mathematically true.] There is libration in longitude, and also in latitude. [There is.] The former is caused by the fact that the velocity of the rotation is not always equal to that of the revolution [this is pure assumption], being sometimes greater and sometimes less. This arises from the circumstance of the velocity of revolution being variable, while that of rotation is rigorously uniform. [Idem.] The libration in latitude arises from the fact that the axis of rotation is not rigorously parallel to that of revolution, but inclined to it at a small angle (1° 30′ 10″). [It is alleged by astronomers to be far greater, viz. 6° 37′, or thereabouts. The mean inclination of the Moon's equator *to the ecliptic* is 1° 30′ 11″!] The phenomenon of rotation is therefore distinct from and independent of that revolution. The two motions have different velocities, and take place round different axes. They cannot therefore be identical; and this disposes of the question of the rotation, which is demonstratively established. [If mere assertions can do it: certainly not otherwise.] So far, therefore, as the particular case of the Moon is concerned, the argument of Messrs. Hopkins, Symons, and those who agree with them, falls to the ground."

It is in little danger of any such mishap from such very harmless blows. I trust even this short essay will suffice to "demonstrate" that the Moon has no rotation round her own axis; and if so, some other cause must be sought for her librations; but Dr. Lardner speaks as if they could not arise otherwise. It is obvious that they can: meaning, as I presume he does, the complete rotation of the Moon once round her axis. The utmost extent of her longitudinal libration subtends a very acute angle,* and is therefore effected by a rotatory motion *of that extent and no more*, whereas the angular rotation contended for is one entire revolution of the Moon's body round her centre of 360°. Admitting, therefore, that these librations amount to axial rotations, they are occasional and minute. Is it a fair mode of arguing, therefore, to say that "the Moon's rotation" is thereby demonstrated?

Professor Hansen thus enlarges on the interesting phenomena which

* May not these librations, however, be caused by the ellipticity and eccentricity of the lunar orbit and her moments of inertia: affected again, according to recent discoveries made by Professor Hansen, by the remarkable fact, that the interior of the Moon is of heterogeneous density, and that her centre of gravity is about eight geographical miles (reckoning fifteen to a degree of the Equator) further from the Earth than the centre of her figure?

result from the position of the Moon's centre of gravity. I quote from his letter to Professor Airy, in the November Paper of the Royal Astronomical Society of 1854 :—

"If, as we here must assume, the opposite hemisphere of the Moon is more dense than the hemisphere turned towards us, it necessarily follows that the mean level of the former will be somewhat depressed, and the mean level of the latter somewhat elevated. If we suppose the moon to be an ellipsoid, the elongation of which lies in the direction of the Earth, then the hemisphere of the Moon which is next the Earth will rise a little more above the mean level, and the opposite hemisphere will sink a little more beneath it. Nay, we may consider it as not impossible that the surface of the opposite hemisphere of the Moon wholly or partially accommodates itself to one and the same level, in a similar way as we find to be the case with the Earth.

"We need not, then, under these circumstances, wonder that the Moon, when viewed from the Earth, appears to be a barren region deprived of an atmosphere, and of all animal and vegetable life ; since, if there existed upon the Earth a mountain proportionally high, and, consequently, having an elevation of 216,000 metres, or 29 geographical miles, there would not be recognizable upon its summit the slightest trace of an atmosphere, or of anything depending thereon. We must not, however, conclude that, on the opposite hemisphere of the Moon, the same relations exist ; but rather, we should expect, in consequence of the distance of the centre of figure from the centre of gravity, that an atmosphere and animal and vegetable life may there find place. Nearly at the Moon's limbs the mean level must exist ; consequently, we might reasonably expect to discover there some trace of an atmosphere."

Now if the Moon rotated on her axis, the centrifugal force would take effect on all portions of her equatorial circumference. It is because she does not rotate, that it takes effect on the side remotest from the Earth, and thus causes the conformation discovered by Herr Hansen—one of those interesting facts which I stated would be invalidated by the rotation of the Moon, and for which I was sneered at by writers evidently ignorant of these discoveries.

Dr. Lardner has been good enough to assist my effort to rescue children from the utter confusion of ideas caused by the astronomical use of the term rotation, applied to the lunar movement, by this happy *ad absurdum* illustration of it :—

"To take another illustration of this principle : a mountain—the Peak of Teneriffe for example—is moved round the centre of its parallel of latitude, presenting always the same side to that centre. This mountain is not a globe, like the Moon, and has no geometrical line analogous to the Moon's axis ; but that does not affect the principle of the question. *The same reasoning which proves the Moon to rotate on its axis must establish, with equal conclusiveness, the rotation of the Peak of Teneriffe upon a certain line as an axis of rotation, that line passing through the mass of the mountain in a direction parallel to the terrestrial axis,* the time of rotation being 23 hours 56 minutes.

"I can only repeat, that the point requires more clear exposition than it has yet received."

This is doubtless so : and we are all rotating each on his own separate axis, though standing perfectly still side by side ; similarly, every atom of the globe is doing the same ; and we should teach children that the reason why each portion of the tire of a wheel, and each nail in it revolves in exactly the same time as the nave at the centre, is the "*extraordinary circumstance*," as Vinke calls it in his *Elements of Astronomy*, that each part and each nail rotates on its own axis in exactly the same period. Yet this precious absurdity is logically incumbent on all who hold the rotation theory as the fit mode of instructing youth in a clear and intelligible manner. Here is Dr. Lardner's affirmation of this very statement in his second letter of elucidation :—

"Your correspondents explain the phenomenon by supposing it [the lunar motion]

to be identical with the case of a globe connected with the centre in the same manner in which the parts of the Earth's surface are connected with its axis; and they consequently identify the motion of revolution with a motion of rotation, of which the axis is a line drawn through the centre of attraction at right angles to the plane of the orbit. [Just so.] *Astronomers*, on the other hand, would explain the phenomenon by supposing the globe to have a motion of rotation *rigorously equal in velocity* to that of its revolution, and round an axis [within itself; for this is the established axiom to which Dr. Lardner is pinned] parallel to its axis of revolution. *The adequacy of the explanation is so obvious, that it may be demonstrated by any clever school-boy who is familiar with the elements of geometry"!!!*

Its adequacy consists in explaining that it is rigorously equal and parallel to itself: the two motions being *alter et idem!*

As this is a dry subject, and I am anxious to render it as popular as possible, may I venture, before broaching points unavoidably geometrical, to insert a letter from an ordinary mind off Corfu, the last of the flood with which I have been honoured and deluged from all quarters on this subject, and by no means the least scientific:—

H.M.S. MODESTE, CORFU,
May 3rd, 1856.

SIR,—Having seen several letters in the *Times*, which are not remarkable for philosophical politeness or even perspicuity, denying your assertion respecting the non-revolution of the Moon about its own axis, I beg to tender for your consideration the following suggestion:—Let the Earth be supposed to have a perfectly smooth and hard surface, on which is a vehicle capable of being moved in any direction with a given velocity; in the latter, imagine a staff fixed in a nautical position, surmounted by a spherical-shaped body. The Moon being vertical, let the vehicle be put in motion, keeping the former at an altitude of ninety degrees, until both return to the meridian from whence they started. Then the spherical-shaped body must have had a motion, as far as the argument is concerned, identical with that of the Moon. Now, if your uncourteous opponents can prove that the sphere has revolved round its axis (supposing the experiment to have taken place), every mountain, nay, every human being, must revolve round his or her axis every twenty-four hours. If such be the case, there must be some truth after all in the old story, which refers to our friends at the antipodes standing on their heads.

The Moon certainly revolves round its own axis, as far as showing its various parts to a particular fixed star is concerned; but the same may be said of Mount Etna, or of a balloon which remains suspended over a given point on the Earth's surface for twenty-four hours.

The Moon revolves round *an* axis, not its own, but that of the Earth, nearly in the same way as an orange, secured to the side of the rim of a moving wheel, revolves round the centre of the latter.

The Moon, in my opinion, no more revolves round its own axis, than it would do if, having approached the Earth, it was comfortably packed in a luggage-train, and sent on a voyage round the world, occupying just one of its own months on the trip.

By way of apology for presuming to offer an opinion on the above subject, I may state that I am the author of *Great Circle Tables for the North Atlantic*, and other works.—I am, Sir, your obedient Servant, JAMES M. SHARE, R.N.,
JELINGER SYMONS, Esq. *Master, H.M.S. Modeste.*

To close this part of the subject, I have simply to suggest that one of the best practical modes of illustrating the difference between lunar revolution and axial rotation is, I think, to conceive a waggon travelling horizontally round a circular wall, with one wheel dragged and another revolving as usual. The dragged wheel represents lunar motion, the other axial rotation: that is the difference. It has been argued that one has only a quicker "rotation" than the other. It may as well be said that walking is a quicker pace than standing still! Let us now examine the geometrical properties which distinguish these separate motions, as well as those which fail to establish their identity.

PART II.

Having the honour of acquaintance with the Astronomer Royal, I wrote to him in somewhat general terms embodying the views I have here put forth, and requesting the favour of his opinion upon the subject. The following letter is his reply :—

"ROYAL OBSERVATORY, GREENWICH,
April 19*th*, 1856.

"DEAR SIR,—In reference to the Moon's rotation round her axis :

"The consideration of this matter is, I think, very much confused by introducing the notions of balls fixed to revolving boards, and the like, which have no counterpart in the real cosmical system.

"Instead of this, let me ask you to consider it in the manner of a physical astronomer, which is, in fact, the way of referring it exactly to the laws of action, and to the circumstances of nature.

"The Moon is not compelled by any material connection, to accompany the Earth. She is attracted by many bodies, but especially by the Sun and by the Earth—more powerfully by the Sun than by the Earth—and by these two attractions she is (to use a homely expression) 'pulled about,' so as to describe a very complicated orbit, round the Sun (if considered with reference to the moveable body which moves the least), or round the Earth (if considered with reference to a body which moves more) ; but she cannot properly be said to revolve round either of these without reference had to the presence of the other.

"Thus you will see that the Moon is truly a body wandering in space, not tied to any orbit, but describing (under the action of the attracting forces) such a course, that her path *relative to the earth* will not differ *enormously* from an ellipse, though it does differ from it *very considerably*.

"All this applies to the motion of the Moon as a mass, or of the Moon's centre, with reference to the Sun and the Earth. Now let us consider the rotation of the Moon round an axis of its own.

"Suppose that a body moving freely in space, whose motion is determined by the attraction of numerous external bodies, and especially by the attraction of two (the Sun and the Earth) rotates. If we wish to determine either the fact or the velocity of its rotation, we must refer the direction of some produced radius of the body to some zero point. We may take the *general* zero point, or we may try to find a *special* zero point. Now what shall that special zero point be? The principal attractor, *i. e.* the Sun? Not at all: the Sun's attraction, great though it be, does not affect the Moon's rotation in the least; quick or slow though the first rotation were, equally quick or slow it would remain under any action of the Sun. There is, therefore, no virtue in the Sun which should make it the point of reference for rotation. Ought it to be the Earth? *A fortiori*, no: because the Earth has less power on the Moon than the Sun has. What then is it to be? Clearly the same which is the point of reference for all other rotations; namely, some point (as a star) at a distance so great, that the motion of the Moon in going round the Sun does not sensibly disturb the direction of the line from the Moon to the star.

"There is another reason why such a point of reference should be taken. Rotation produces certain calculable dynamical effects; as oblateness. But this oblateness will be calculated correctly *only* by referring the rotation to a point as *distant as a star.*

"Having thus come to the point that rotation is to be referred to something very distant, as a star, and *not* to anything near, as the Sun or Earth, there is little difficulty in ascertaining from observable appearances whether the Moon does or does not rotate. Does she always turn the same part of her face to the same star? No. Then she does rotate. If her face has been once turned to a star, how long time elapses before it is turned to the same star again? $27\frac{1}{4}$ days. Then $27\frac{1}{4}$ days is the time of her rotation.

"I would only again beg you to lay aside the supposed illustrations by pieces of wood and circular boards, and to consider the thing as nature presents it, varying my expressions as you may find best for your understanding.—I am, dear Sir, faithfully yours,

"(Signed) G. B. AIRY.

"JELINGER SYMONS, Esq.

"P.S. If you will do me the favour to call any morning at the Observatory, I will show you a revolving or conical pendulum in which the revolution is really *not* accompanied by rotation; and you will remark the difference of its appearance from that of the Moon."

Nothing can be more lucid than this explanation of the mode in which astronomers use the term "rotation." I have already stated the grounds on which I respectfully deprecate Professor Airy's objection to the use of rigid instruments as illustrations of the point at issue, and which the above-named eccentricities of lunar motion do not affect. The objection, however, would perhaps have less weight in the Professor's mind if the illustration were taken from a ship sailing round the world from north to south. As the Earth is an oblate spheroid, the ship's course would, like the Moon, describe an ellipse, and she would pursue her elliptical pathway round the Earth's centre, with nearly as much freedom as the Moon pursues hers; nor would the ship's deflections from her course, or the heeling over and oscillations of her hull, caused by tides, winds, and waves, very materially differ from the librations of the Moon "pulled about" by Sun and Earth. Her masts would point successively to different stars. Thus, if the Moon rotates on her axis, so does the ship on hers: though such a mode of expression would certainly be esteemed a great mistake in any physical science; and I apprehend, that if I wished a ball or wheel to revolve precisely as the Moon does, in any piece of mechanism, the most certain way of having the whole of it spoiled would be to tell the machine-maker to make it "rotate on its own axis." Nevertheless, we have the high authority of the Astronomer Royal that in astronomical science it is otherwise; and as my sole object is to adapt the explanation of elementary facts in astronomical books for popular instruction to the comprehension of ordinary minds, and certainly not to alter the phraseology of professors, I willingly bow to the fiat of the Astronomer Royal, as far as it affects the arcana of science and the language of savans. For the mathematical calculations of astronomers, dealing with

infinite distances,* I can readily conceive why there may be no necessity that their definitions of circular motions should distinguish between those of lunar revolution and axial rotation, and I can also understand why it may be inconvenient to do so; but I do not the less on that account venture to submit that such distinction *does exist*, both in lunar and sublunary motions, and that for the purposes of popular education it is essential to distinguish them. It is the fact, moreover, and I think it proves the utter unfitness of scientific phraseology in this matter for such educational purposes, that the definitions of axial rotation assume as axioms the question at issue; and fail also to disprove the difference between the two motions.† For example, it is very true that it is a necessary condition of rotation that a radius produced from the rotating body shall point successively to all quarters of the horizon, or, as Professor Airy suggests, to different fixed stars at immeasurable distances. But stated in these terms, such generic property of the rotation of a body round its own axis, is also the generic property of the revolution of a body, which, like the Moon, revolves with the same face turned towards its distant centre of revolution. Figure C in the diagram illustrates this: and also the angular difference and velocities between the radii so produced in the two cases. The radius $f\,a$, in the case of lunar revolution, will, while the Moon's centre has passed along the arc $f\,f'$, have passed from star γ to star δ; in the case of *axial rotation* the same radius $f'\,a'$ will have passed still further round the horizon, and having at the Moon's circumference described the distinct and *additional* arc $a'\,a''$, point beyond δ, and have reached θ. It is therefore obvious that rotation and lunar revolution have the property in common (differing only in angular velocity) which Professor Airy attributes to the former. I humbly submit that this affords but slight presumption that the two motions are therefore identical; scarcely more so than it would to assert that two triangles were equal, because their sides were equal.

It has been remarked that the question of rotation is one which must be determined exclusively with relation to space. I venture to submit that it has no necessary relation to space whatever. If the Moon were alone in chaos, the question of her rotation or non-rotation would be nowise altered. The rotation of a body is determinable by the relative movements of different parts of its own body, quite independently of reference to space or to any external point. So is revolution round a

---

* For example, viewed with relation to such distances that the diameter of the Moon would subtend no perceptible angle, there would be no assignable difference between the aspects presented by the two movements, and no necessity for defining it.

† "If a sphere, whose centre moves freely in a plane, has no *rotatory* motion, its radii always remain parallel to themselves."—"A WRANGLER!"

LEMMA.—"If a circular dish be laid upon the surface of this paper, and any one of the points of its circumference be brought in succession opposite to the four sides of the paper, the dish itself must have been constrained to revolve about its centre, whether that centre be fixed or otherwise."

"IF a rigid body is moved from one position to another, by whatever means and path, preserving any numbers of lines joining fixed points within it parallel to their first positions, it does not rotate. But if any one or more such lines are inclined to their first positions, the body has *rotated* round some axis," &c.

[It would indeed be an easy matter to prove anything by similar postulates, if they were but conceded!]

distant centre, except in as far as that centre itself may be called external to the revolving body; being of course the centre of its orbit. References to the relation which rotating bodies bear to space complicate the question at issue, and are a fertile source of misconceptions. Mr. Perigal has so clearly defined this branch of the question, in his paper "On the Misuse of Technical Terms," that I beg to quote it here. He says:—

"The velocity and other trigonometric functions of revolution and of rotation may be very properly expressed in terms of the angles which the revolving or rotating radius makes with a *fixed line*, given in position, whenever the revolution or rotation is likewise about a *fixed centre*. Due consideration will show equally clearly, that when the centre is *not fixed*, but itself describes an orbit, the orbital revolution, or axial rotation, ought to be treated as *relative to the revolving radius*, or *deferent*, in which that centre is located, and with which it traverses space, and not to a fixed line, as in the former case. For instance, supposing the Sun were stationary in space, without any other motion than a circular movement of rotation about its own centre, such axial rotation might be very properly referred to a line fixed in space. If the Earth revolves round the Sun, then such orbital revolution may be referred to the same fixed line. If the Earth, while so revolving, has a second movement of rotation about its own centre of gravity, then such axial rotation should be referred to the line joining the centres of Earth and Sun; not to the first-mentioned fixed line. Again, assuming that the Earth revolves about the Sun, if the Moon revolves about the Earth, and simultaneously were to rotate about her own centre of gravity, her orbital revolution about the Earth ought to be referred to the line joining the centres of Earth and Sun, while her axial rotation should be referred to the line joining her own centre to that of the Earth. And so on for as many such epicyclic movements as may be in combination; the rotations or revolutions in such cases being about moving centres are *relative* to the various lines of centres, and must not be confounded with the absolute motion ultimately resulting from the operation of all the different movements acting together.

"Although, in the present discussion, the argument is confined (for the sake of avoiding complexity) to the effects of motion in *circular* orbits, yet it would be equally applicable to motions in *ellipses* or *other curves*, as may be thus shown. Let the Moon's centre describe any orbit whose polar equation is $r=f(\theta)$; r being $=\mathbf{a}$ when $\theta=0$. In $\mathbf{a}$, and its production, let there be taken $\mathbf{a}'=\mathbf{a}-\mathbf{e}$ and $\mathbf{a}''=\mathbf{a}+\mathbf{e}$ for the same values of θ; then, for any other values of θ, the three points in the same straight line which joins the centres of the Earth and Moon will describe congenital curves, which may be termed *ellipsic*, or other *conchoids*, according as the curvilinear directrix (either of the three curves) is an *ellipse*, or other curve, having for their equations—

$$r'=r-\mathbf{e}=f(\theta)-\mathbf{e},\ r=f(\theta),\ \text{and}\ r''=r+\mathbf{e}=f(\theta)+\mathbf{e};$$

consequently, *no libration* will ensue under such circumstances; because there is no rotation in the case, the motion being orbital only."

Before proceeding to show the really essential geometrical differences in kind, as well as degree, between the two motions, I may be permitted to remark that the fact that the Moon thus turns the same radius all round the horizon, and different faces to any fixed object outside it, has been the chief stumbling-block of those who believe that she must rotate on her own axis to produce this result. It is caused by simple revolution.* So that the hemisphere of the Moon, which at one part of her orbit faces the north, must at 180°, or when at the opposite side of it, face the south; but in point of fact this is precisely the same kind of motion, or turning round, which would be imparted to a ball, a (See Figure C again), through which the arm of a lever (y, a, F) were passed, having its fulcrum at F. Thus, the outside of the ball a would, as the lever moved it round the circle

* The ordinary delusion is that some *additional* turning is requisite; the fact being, that the Moon simply keeps one side towards the centre of her orbit.

g, face all points in the compass: but would any one dream of describing the motion of such a ball as *rotating round an axis within it*, or, what is the same thing, round its own axis?*

The following letters will appropriately introduce the consideration of the actual differences and distinct properties which, in my humble opinion, clearly distinguish the two movements.

"*May 3rd*, 1856.

"DEAR SIR,—I think of publishing the best letters which have been written, some of which, like your own, have not yet been published. I should feel greatly gratified by your kind permission to add yours to the number.

"It would materially tend usefully to elucidate the subject, if you were kind enough also to tell me your opinion on these points:—

"1. The Moon's motion being that which you clearly describe in your letter, keeping the same hemisphere always towards the centre of her orbit, must not every point in her body describe concentric rings (allowing for the ellipticity of her orbit) round the Earth, no point in the Moon describing concentric rings round *her own* centre?

"2. Must not the point most distant from us in the Moon move, during her revolution, with more velocity than the point nearest to us in the same plane, though at equal distances from her centre; the former point having a larger arc to traverse than the latter in the same time?

"3. Is it not a necessary condition of the rotation of a body round its own axis, that all points in the body should move in concentric rings round its own centre of rotation? Is it not also a similar condition of such axial rotation, that all points in the rotating body, having the same radius from the centre and in the same plane, should move at equal speed, and that their velocity of rotation is in proportion to their distance from the centre?

"4. If so, is it not a misuse of terms to say that the Moon rotates on or round *her own axis*?

"Though it is true that to a fixed star, or any point outside the Moon's orbit, she presents similar faces to those which her axial rotation would present, these, though common to each motion, do not, I venture to submit, prove their identity.—I am, dear Sir, with great respect, yours very truly, "JELINGER SYMONS.

"PROFESSOR AIRY."

"ROYAL OBSERVATORY, GREENWICH,
"*May 5th*, 1856.

"DEAR SIR,—In reply to your questions of May 3—

"1. Every point in the Moon's body does describe a ring round the

* I have been favoured on this point with manifold diagrams, several experiments, and sundry suggestions;—*ex. gr.*, "May I request you to put your finger into a hole in a felloe of a wheel, and see if you can (standing of course outside its circumference) turn it round without allowing the said hole to rotate round the said finger." For the reason above given, certainly not. If I place my elbow at the nave, or centre of the wheel, I obviously can; which brings us to the real difference between the two motions. Again, I have been frequently asked, triumphantly, whether, if a string were tied to the Moon, and held at the other end at the Sun, it would not be twisted round the former. I have no doubt it would; but this proves no more than that the Moon moves round her orbit: it is the same property as above admitted—common to her revolution and to axial rotation; either would coil the string.

Earth, *that Earth being a travelling centre.* Every point in the Moon's body does also describe a ring round that axis of the Moon which is perpendicular to the Moon's orbit, *that axis being a travelling axis.*

"2. This question cannot be answered very simply. All motion (except purely angular rotation) is RELATIVE, and the point of reference must be stated; thus—

"With reference to the Earth, the invisible half of the Moon moves with the greatest velocity;

"With reference to the Sun, the half of the Moon invisible to us moves sometimes quickest and sometimes slowest;

"With reference to the Moon's centre, the two halves of the Moon move with equal speed.

"3. A body consisting of firmly-connected parts, if it rotate at all round any centre whatever, *must* (by geometrical necessity) so rotate that all points move in concentric rings *relative to that centre*, and the speed of each particle *relative to that centre* will be proportional *to the distance from that centre.* But this does not at all determine where that centre is.

"4. Nobody scruples to say that the Earth revolves round its axis, because, if we lay down in a plan the motion of any point of the Earth, *conceiving the Earth's axis to be fixed*, it shows distinct circular daily rotation with reference to that axis. But if we lay down the motion of the same point in a plan, *conceiving the Sun to be fixed*, it exhibits no sign of daily rotation. In like manner, we say that the Moon revolves round its axis, because, if we lay down in a plan the motion of any point of the Moon's body, *conceiving the Moon's centre to be fixed*, it shows distinct circular monthly rotation with reference to that centre. But if we lay down the motion of the same point in a plan, conceiving the Sun to be fixed, it exhibits no sign of monthly rotation. It is true that if the motion of any point of the Moon be laid down, *conceiving the Earth to be fixed*, it shows distinct circular monthly rotation round the Earth; but this does not contradict what has been said in reference to the apparent motion of a point, when the Moon's centre is conceived to be fixed, and does not invalidate the inference that the Moon rotates round her own axis.

"I may add generally—

5. "Suppose it to be known that a point or body does rotate, *with reference to any specified axis*, then the point or body may be said, with equal propriety, to rotate round *any other axis parallel to the former, provided that this* statement be accompanied with a statement of the *motion of translation of the new axis relative to the former.*

"You are at liberty to publish my letters, if you think it desirable: but I doubt the advantage of doing so, for I have said nothing which is not extensively known.—I am, dear Sir, faithfully yours,

"JELINGER SYMONS, Esq." "G. B. AIRY.

I beg now again to refer the reader to the three diagrams in Fig. A, and by aid of the admissions in the above letter, and the application of a few dynamical laws, which I will divest as much as possible of technical phrases, I hope that I shall be able to prove that, by the motion represented in Fig. 1, the Moon, whose motion is indicated by the point of the arrow, would rotate on her own axis backwards, that is, from east to

west, and preserve her parallelism,* simply by thus counteracting her orbital revolution, which is from west to east; secondly, that No. 2 represents the rotation of the Moon on her own axis, in addition to, and in the same direction with, her orbital revolution; while No. 3 represents her at rest on her own axis, revolving simply round the distant centre of her orbit, which I submit (without impugning the right of scientific men to designate it as they please) is the actual motion of the Moon, and the only way in which it can be intelligibly stated to ordinary minds.

First, as regards the immobility of the Moon on her own axis in her orbital revolution, as represented in Fig. 3 of Diagram B, Professor Airy admits that "every point in the Moon's body describes a ring round the Earth." † It is so represented in that diagram, and it requires no demonstration beyond that of mere eyesight, that if point *e* preserves a position always opposite to the Earth, or centre of the orbit, it does not, at any period of its revolution, rotate, revolve, or turn, in any mode or manner round *c*, the centre or axis of the Moon, but always keeps within it: the centre, or axis *c*, in point of fact revolving round *e*. The same is obviously the case with point *d*, and with every other point that may be taken in the hemisphere of the Moon nearest to us, and on this side of her centre. Nor do points *a* or *b*, or any other points in her further hemisphere, revolve round the Moon's centre in any other manner than that in which one concentric ring, or a ball fixed by a ring to it, may be said to revolve round another. Now, if one-half of the Moon in no manner or way ever revolves or turns round its own centre, it follows that "*the Moon*" does not. Thus, when the Astronomer Royal says that "every point in *the* Moon also describes a ring round *that* axis of the Moon which is *perpendicular to the Moon's orbit*," he must surely mean an axis in the centre of that orbit, and not in the Moon's body; and this is rendered more probable by his subsequent statement, that "a body, if it rotate at all round any centre whatever, must (by geometrical necessity) so rotate that all points move in concentric rings relative to that centre;" and he also says that "every point in the Moon's body describes a ring round the Earth." Thus, then, the Earth is the centre round which the Moon is said to "rotate;" for in no revolving body can any points, by any possibility, form concentric rings round more than one centre. Therefore, if the Moon form them round the Earth (as in Fig. 3, Diagram B), the Earth is the *only* centre or axis round which she revolves or can be said to rotate: *ergo*, she does not revolve or rotate round an axis *within herself*.

It also follows from the premises, that if the Moon did rotate round her own axis, instead of her points describing concentric rings round the Earth only, they would, at the completion of one rotation (if synchronous with one orbital revolution), have described concentric rings entirely round her own centre or axis, as in Fig. 2, Diagram B; and as each of these points would have a double motion; namely, the motion of orbital revolution, which is a motion of translation, and the movement round the Moon's own axis, which is one of rotation,—each of these points

* This is the same thing as presenting the same face always to the same point of the compass or horizon.

† "That Earth being a travelling centre," is immaterial to the question at issue, as the Moon travels with it, and their relative periodical distances are immutable.

would describe what are termed bicircloidal curves; to which each of these movements in combination would contribute, and which I have attempted roughly to delineate in Fig. 2, Diagram B, though I by no means present them as geometrically correct. I have merely traced the course of two (*a* and *b*), to avoid confusion by the complex intersection of the lines which would otherwise result. It will be observed, that though, if the Moon had a rotation round her own axis, the lines described even by any six or seven points in her body would cut each other in every direction, no number of points in the actual motion of the Moon can describe any but concentric rings, as in Fig. 3, so that no line ever cuts or touches another.* The concentric rings merely represent the motion which each of the points, *a*, *b*, *c*, and *d*, would describe if the Moon were at rest as to translation, and simply rotated.

There is another difference. As I put it to Professor Airy, those points in the Moon which are furthest from the Earth (*a* and *b*, in Fig. 3, Diagram B) must move with more velocity than those which are nearest to us (such as *d* and *e*). I did not of course mean with reference to the Moon's translation in space, but as the Astronomer Royal, at the beginning of paragraph 2 in his letter, properly assumes, with reference to the Earth (or, which is the same thing, with reference to the Moon's orbital revolution); and he admits, that "the invisible half of the Moon moves with the greatest velocity;" that is, invariably. Would this be the case if she had any rotation round her own axis? Clearly not; for any given point which, like that at the sharp end of the arrow, in No. 2, Diagram A, is outermost at one period of the orbital revolution and moving with the *greatest* velocity, is innermost and moving with the *least* velocity, when the Moon arrives at the opposite side of her orbit. And no change in the speed of rotation would alter the fact, that in the same degree the velocity of each point's motion with reference to the Earth would thus vary in velocity, instead of remaining invariable. Professor Airy's remark in paragraph 3, that the speed of each particle in a given body, relative to the centre round which such body rotates, will be proportional to the distance from that centre, confirms the accuracy of the law I submitted to him (and also the movement I ascribe to each point in the Moon, as shown in Fig. 3, Diagram B). The mere statement of that law of course "does not at all determine where that centre is." But I venture to hope that I have already done so, and shown that it is the centre of the Moon's orbit. And Professor Airy does not deny it; but, on the contrary, seems to me to have abstained from doing so, while the terms "circular monthly *rotation round the Earth*" show how the word rotation is astronomically applied, and where its centre may be.

Ample as the foregoing distinctive geometrical properties of the two motions are to vindicate our right to have them distinguished by name, the chief one has yet to be named; and as it is also the best test of what is, and what is not, axial rotation, instead of stating it with mathematical brevity, I will endeavour to describe it popularly.

When the body moves forward in any line, whether straight or curved, the extreme outer points of its circumference in the same horizontal plane describe two lines, parallel, if the direction is straight, and

* For a mathematical proof of this see Appendix A.

concentric if circular.* The centre point between these will, as it moves along, describe the line of motion in which the body is moving; and this motion is what is technically termed motion of translation (or, in commoner words, locomotion). Draw a line through these three points, and it is what mathematicians call the radius-vector; and whichever way the line of motion travels, whether it be straight, or curved, or circular, the radius-vector will always be at right angles to that line of motion. Now to apply this to the Moon. The two outer points will be those in the rings which bound the plane of her orbit, where, at any time, the circumference of the Moon's body touches them. Extend the radius-vector both ways. Thus the line *a f b F* in Diagram C would be the radius-vector of the Moon in that figure; and similarly so would a line drawn through the points *a*, *c*, and *e*, in Fig. 3, Diagram B. The law determining the rotation on its own axis of any moving body may be thus defined:—So long as the same point in the circumference of the moving body is cut by the radius-vector, that body does not rotate; and conversely, whenever different points of its circumference are cut by the radius-vector, it has rotated. To apply this to the Moon, we shall find so long as she keeps the same face to her centre, the radius-vector intersects the same point (as *b*, in Diagram C); but whenever this cardinal property of the Moon's motion is departed from, some other point of her circumference is immediately intersected by the radius-vector. It has therefore been well observed, that "the passing of all its points across the radius-vector of a planet is the surest, as it is indeed the most perfectly incontrovertible, sign and proof of its rotation."

The scientific author of the Edinburgh essay on this subject has thus clearly elucidated this test, and employed it to prove the retrograde axial rotation of the Moon in the case illustrated in No. 1, Diagram A, and which motion, called the parallel motion, has misled so many people, who, believing that it is *not axial* rotation, have therefore jumped to the conclusion that the lunar movement (No. 3) *is* axial rotation.†

"The axis of a revolving body remains constantly at the same distance from the centre of its orbit, and the radius-vector is always the shortest straight line between that axis and that centre. But the radius-vector has only *one* movement,—always *forwards* with the moving axis which it connects with the immovable centre, its different parts moving with different degrees of velocity proportional to their distance from the centre. It never *turns back* its inner end, any more than the centre itself to which it is attached turns back from its central position; and consequently every change that takes place in the relation of the parts of the Moon's mass or circumference to that radius can only be the effect of movement in the Moon itself or its parts. The relation of the radius-vector to the Moon's axis is invariable; and if the same point of the Moon's circumference be always intersected by the radius, the relative position of that point not only to the radius, but also to the axis of the Moon and to the centre of the orbit, must be just as invariable as the invariable and immovable centre itself. It will always keep the same relative place on the shortest straight line between the axis and the centre, being itself the nearest point of the revolving body to that centre; and there is only one way in which its relative position can be changed; namely, by its diverging from the radius-vector, either to the right hand or to the left. In either case the Moon's mass will oscillate, or turn on its axis, to the extent of the divergence, and if the divergence be continued in either direction

* Concentric rings being, in fact, circular parallel lines.

† An easy mode of proving that No. 1 *is* axial rotation is this:—Stand on the edge of the circular plate on which railway-carriages are turned; have it turned from west to east, and see if it be possible to preserve your face always to the north without turning on your own axis from east to west.

till every point of the circumference in succession shall have passed the radius-vector, the body will have performed a complete rotation on its own axis, whatever may be the phenomena or appearances which it may present in other respects. The passing of all its points across the radius-vector is the surest, as it is indeed the most perfectly incontrovertible, sign and proof of its rotation.

"The radius-vector certainly does not cross the orbit with it; the inner end of the radius-vector, which, I may say again, is nothing else than the shortest straight line betwixt the Moon's axis and the centre of the Earth, certainly *does not revolve* in the opposite direction round about on its outer end at the Moon's axis, unless it were true, —which is, however, positively and perfectly impossible,—that the fixed centre itself revolves about the Moon and her axis. How, then, is it possible to avoid the conclusion, that if the Moon were to revolve with all the points of her circumference in succession *passing the radius-vector and crossing the orbit*, though she might at the same time keep the same face constantly looking to the same fixed point outside; or, in other words, supposing her to move in or on a horizontal plane with the north, south-east, and west quarter points of her circumference always directed each to the corresponding point of the horizon, she could only accomplish that feat by means of a rotation, or turning round on her axis *once*, during the period of her orbital revolution? In such a case, one of two things must happen; either the point of the revolving body that diverges from the radius-vector westward turns round on the body's axis 90° in each quadrant, or the centre of the orbit, carrying the inner end of the radius-vector along with it, turns round about the body's axis to that extent in the contrary direction. But the centre is a fixed spot, which, by the necessity of its nature as a centre, is incapable of moving from its place; the radius-vector, proceeding from that centre, is, by its nature, just as incapable as the centre itself of turning backwards by its inner end; while, on the contrary, not only is there no incapability of movement on the part of the planet, but there has been a real and visible movement of the parts of its circumference, past and away from the radius-vector and the centre and across the orbit; therefore it follows inevitably, that the divergence to be accounted for is, and can only be, the effect of the last-mentioned movement of the planet, and of a real and actual rotation, or turning round, of the body on its axis.

"From these premises, it follows inevitably, that whensoever and to whatsoever extent there happens a change of relations between the parts and points of circumference of a body revolving in an orbit, or circular path, on the one side, and the radius-vector or other radius, or radii of the circle and its centre, on the other, that change must be the result, solely and exclusively, of a rotary movement of the revolving body on its own axis. * * * * * * * * * *

"If the rotation be made in the same direction as the orbital revolution, or from west to east, to the extent of one degree of circumference for each degree of the orbit, the planet will, in every complete orbital revolution, inevitably bring every point of its circumference in succession once to the radius-vector, and there present it directly to the centre; and from this undeniable fact it follows inevitably, that if the same point of circumference remains continually in one with the radius-vector, and directed to the centre, that permanence of its relation to these members of the orbit, which are in themselves invariable in their relations to the planet's axis, must be, and *is*, the certain token of the planet's *non*-rotation.

"But astronomers say, if the Moon were *not to rotate* on her axis, she would carry every point of her circumference in turn past the radius-vector backwards, or from east to west, and present them all in turn to the Earth in or near the centre of her orbit, and at the same time keep all her parts perfectly parallel to a fixed straight line drawn across the plane of her orbit, and that permanent parallelism is a proof of her non-rotation. The Moon would, indeed, if she were perfectly *free* in her movements, under the single condition of keeping her *axis* within the limits of a definite orbit, exhibit these phenomena, and preserve that perfect parallelism; but, *horresco referens*, that would most certainly be the effect of her rotation on her axis backwards, or in a direction *contrary* to that of her revolution, namely, from east to west, while she revolves from west to east. And to keep in countenance this paradox, it is assumed, not tacitly or inadvertently, but directly and expressly, that, in this case of retro-rotation, or so-called parallelism, it is the radius-vector, nay, the centre of the orbit itself, that moves in the opposite direction from the point *a* of the moon's circumference! But I have endeavoured to show already, that the radius-vector and the centre are perfectly incapable, by their very nature as such, of making the smallest change in their relations to the moving body; and that, whatever change takes place in the relations of the moving body's circumference, is, and must be, solely and exclusively the effect of the rotary movement of the planet or satellite on its own axis.

And the parallelism which has been assumed, and so triumphantly referred to as the token of non-rotation, would be occasioned by so very simple a process as this:—When the planet turns round on its axis from east to west, the axis itself, while it preserves the same invariable relations to the radius-vector and the centre, is continually changing its place on the orbit, and of course its relations to every surrounding object outside of the orbit, all round the compass; and as the rotation is performed in precisely the same proportion as the orbital revolution, degree for degree, but in opposite directions, the result is *apparently*, though not *really*, to neutralize the rotation, and so to keep the parts of its mass always directed to the same points of the compass, always parallel to themselves, and to a fixed straight line drawn in the plane of the orbit."

And the same writer further remarks on the general question:—

"To say, therefore, that the Moon's presentation of the same point of circumference constantly to the Earth is the consequence of her rotation, implies nothing less absurd than an *orbital revolution of the Earth itself* round about the Moon's axis, at the very time the Moon is rotating about the relatively fixed Earth! For if the Moon *rotate* with the same face constantly to the Earth, the Earth, to keep her in countenance, must inevitably rotate also, and in the same direction, round about the Moon's axis, as if she (the Earth) were only a part of the Moon's circumference, or an outlying member attached by an inflexible radius. It might be possible for the two bodies to revolve, like the binary stars, about one common axis situate between them, and such, I believe, is the fact; but for them to revolve about each other's axis, at one and the same time, is perfectly impossible; yet nothing less than this perfect impossibility is required to support the received doctrine of the Moon's rotation. But, perfectly impossible as it is, no less great men than Galileo and Laplace have both jumped at once to this conclusion, as the only discoverable means of getting out of the dilemma occasioned by the *parallelism* which we have now discussed and accounted for. The perfect impossibility of the Earth's and the Moon's simultaneous revolutions about each other may be demonstrated by the experimenter's taking a rod or stick, with a ball on each end, and making the two balls revolve about each other, *if he can*. One of them may be made to revolve round about the other at rest, and both may be made to revolve simultaneously about an axis between them at some intermediate part of the stick; but to make them revolve simultaneously round each other, he will soon find to be perfectly impossible. Yet, in the face of this utter impossibility, the great Laplace scruples not to say, that a person in the centre of the Moon, supposed transparent, and revolving about the Earth without rotating on his or her own axis, that is to say, preserving the parallelism we have spoken of, would *see the Earth and her visual ray revolve about him*, that is, round about the Moon's axis, in the space of a month. But true it is, that the Earth, considered exclusively as the centre of the Moon's orbit, supposed for the present a perfect circle, moves not a hair's breadth from her central position; and from that immovability of the Earth, it follows certainly and inevitably, that any change of relation between the Earth and the parts of the Moon's circumference must be the effect solely and exclusively of a movement of that circumference away from the Earth round about the Moon's axis."

Thus the chief geometrical differences between axial rotation and lunar revolution are:—1st. That in the former the revolving body turns every part of it round its own centre or axis, while the Moon does not: 2nd. That in axial rotation all points in the rotating body must describe concentric rings round its own centre, whilst in the Moon no point does: 3rd. That as regards her orbital revolution, all points in the Moon would move with increasing or diminishing velocity successively, whereas each point moves with the same speed; all those points in the outer hemisphere faster than those in the inner hemisphere; these two hemispheres never changing their relative position of inner and outer: 4th. That in axial rotation all points in the circumference of the rotating body must successively intersect the radius-vector, whilst in the Moon one only does: 5th. That whilst axial rotation is independent of a motion of translation, lunar motion depends on it, and ceases with it.

If to a motion thus distinct from axial rotation, definitions are to be

applied such as are cited at the beginning of these pages, how can it be otherwise than that total misconception of the Moon's motion should arise? The conflicting varieties of opinion entertained on so simple a matter, which this discussion has evoked, prove how great is the confusion of ideas created. If scientific men insist on calling the Moon's motion axial rotation, let them do so; but I protest against a misleading use of that term in books of general instruction. Astronomers appear to use the term axial rotation for both motions, just as botanists call wheat and couch-grass by the same generic term, simply because certain affinities prove them to be of the same genus; but botanists also designate each species by its distinctive name, and do not persist in teaching that wheat is couch. *Let astronomers do the same!*

The reader will now judge for himself whether I have or have not established a claim on the writers of works for popular instruction so far to modify their definitions as to give distinct names to distinct motions, and to simplify the explanation of great truths, so that the glorious science of Astronomy—no longer the exclusive privilege of the few—may be brought down to the "level of ordinary minds," and MADE PLAIN TO THE PEOPLE!

APPENDIX A.

Proof of the curves that would be described by any point in the Moon, if she rotated on her own axis, in the same time that she revolves round her orbit. By H. PERIGAL, ESQ., JUN.

The centre of the Moon being supposed to revolve about the centre of the Earth (assumed at rest, to avoid unnecessary complexity), in a circle called the *deferent*, the radius of which is denoted by $\mathbf{D}$; while the Moon is supposed to rotate about an axis perpendicular to the plane of her orbit; any point of her surface at the distance $\mathbf{E}$ from the axis of the Moon's rotation would evidently describe in space a *bicircloid curve*, as the *resultant* of such two movements, of which $\mathbf{E}$ would be the *epicyclic radius*, and the line joining the centres of Earth and Moon would be the *deferential radius*.

If the revolution and the rotation be *equal* in angular velocity, and in the *same* direction, then

$$\mathbf{V}=V, \therefore \mathbf{v}=1;$$

and the equations are in this case

$$x=\mathbf{D}\cos\phi+\mathbf{E}\cos 2\phi,$$
$$y=\mathbf{D}\sin\phi+\mathbf{E}\sin 2\phi,$$
$$r^2=x^2+y^2=\mathbf{D}^2+\mathbf{E}^2+2\mathbf{D}\mathbf{E}\cos\phi;$$

ϕ being the longitude of the Moon's centre from the primitive axis of x.

Let $\mathbf{D}=1$ and $\mathbf{E}=\mathbf{e}$, the values can be restored afterwards; then

$$2x=2\cos\phi+2\mathbf{e}\cos 2\phi,$$
$$r^2=1+\mathbf{e}^2+\mathbf{e}.2\cos\phi;$$

$$2\cos 2\phi=(2\cos\phi)^2-2, \text{ and } 2\cos\phi=\frac{(r^2-1-\mathbf{e}^2)}{\mathbf{e}};$$

$$\therefore 2x=\left\{\frac{(x^2+y^2)-(1+\mathbf{e}^2)}{\mathbf{e}}\right\}-2\mathbf{e}+\mathbf{e}\left\{\frac{(x^2+y^2)-(1+\mathbf{e}^2)}{\mathbf{e}}\right\}^2;$$

or

$$2\mathbf{e}x+\mathbf{e}^2(1-\mathbf{e}^2)=(x^2+y^2)^2-(1+2\mathbf{e}^2).(x^2+y^2);$$

$\therefore$ restoring $\mathbf{D}$,

$$2\mathbf{D}^2\mathbf{E}x+\mathbf{E}^2(\mathbf{D}^2-\mathbf{E}^2)=(x^2+y^2)^2-(\mathbf{D}^2+2\mathbf{E}^2)(x^2+y^2).$$

This equation being of four dimensions, the curve may be cut in four points by a straight line; therefore it must have an inflection or undulation.

The polar equation is

$$r^4-(\mathbf{D}^2+2\mathbf{E}^2)r^2-2\mathbf{D}^2\mathbf{E}r\cos\theta=\mathbf{E}^2(\mathbf{D}^2-\mathbf{E}^2).$$

I cannot conclude without expressing my sense of the invaluable aid I have derived in this controversy from many scientific supporters, and especially to Mr. Evan Hopkins, who is now pursuing the subject with his accustomed ability and success. J. S.

PROOFS OF THE MOON'S ROTATION.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—Allow me to submit to your notice the following proofs of the Moon's rotation, which I forwarded to the *Times* in April, but which, in common with many others, was refused insertion.

Station a vessel at some distance from a buoy, due south of it, with the prow turned towards the buoy. Now it will be found that she may be made to go round the buoy in three ways. And, first, let her be put round with her hull keeping always the same inclination, that is, with her prow pointing continually due north. In this condition, when she arrives at the east, her *larboard* will be opposite to the buoy; when she comes round to the north, her *stern* will be towards it; on arriving at the west, her *starboard* will be presented to it; and on regaining her original position, her *prow* again comes opposite. Here she has gone round, or revolved, *without rotating*, and every part has come successively opposite to the buoy. Secondly, as she goes round, let her *swing slowly on her centre*, in such a manner as always to keep her prow opposite to the buoy. On completing the first quadrant, her prow will point to the *west*; at the end of the second quadrant, it will be towards the *south*; the third quadrant will point it to the *east*; and the fourth quadrant restores it to its original position, pointing *north*. Here the forepart of the vessel has been always *opposite to the buoy*, and at the same time she has *completely rotated*, turning her prow to every point of the compass in succession. A line, drawn from prow to stern of the vessel, represents the Moon's equatorial diameter; another, forming vertical right angles with the centre of it, her axis. This experiment exemplifies the Moon's motion;—a slow axial rotation; a slow rotation on a progressive centre; a gently rotating diameter on a revolving centre. Thirdly, as the vessel goes round, let her rotate continuously. She will then present all parts

of her lateral surface to the buoy as many times as she rotates, *minus or plus one*, according as she rotates in the *direction* of her revolution, or *against* it. This is the Earth's motion;—a swift axial rotation; a swift rotation on a progressive axis; a rapidly rotating diameter on a revolving centre. To prove that a rotating body will present its surface to the centre as many times as here stated, cut out two circular discs of paper, one an inch, and the other six inches, in diameter; divide the circumference of each into twelve equal parts, draw the twelve radii, and number them like the dial of a watch. Pass a pin through the centre of the smaller, from behind the disc, up to the head. Lay the centre of the smaller disc on the XII of the larger in such a manner that the XII of the smaller disc shall point to the centre of the larger. Now, while a body is supposed to revolve from the XII to the XI, let it rotate in the same direction. By means, then, of the pin, move the smaller disc from the XII to the XI of the larger, and while so doing, turn it slowly round in such manner that the I, II, III, IV, &c., point successively to the centre, and count the numbers as they pass. By the time that *eleven* have been presented to the centre, it will be found that the disc has *completely rotated*, the diameter connecting the VI and XII of the smaller disc becoming parallel with the diameter connecting the XII and VI of the larger disc, and the XI of the smaller pointing to the centre of the larger. During its progress, therefore, along one-twelfth of the larger circle, the smaller, in the presentation of its disc to the centre, *falls short* by one-twelfth. Now lay the smaller disc on the XII as before, and move it again from the XII to the XI; and while so doing, turn it slowly round in the *contrary* direction, pointing the XI, X, IX, VIII, &c., successively to the centre. It will now be found that, by the time the disc has completely rotated, *thirteen* of the divisions will have been presented to the centre; therefore, in this case, the smaller *gains* one-twelfth, precisely as the hands of a watch come together eleven times in twelve hours, and would meet thirteen times in the same period if the hour-hand moved backwards while the other advanced. To a spectator, therefore, in the centre of any orbit, in which a body rotated twelve times during a revolution, those twelve rotations would appear as eleven or thirteen, according to the order of rotation. Diminishing the number of rotations till the body is supposed to become stationary, and then reversing the motion, 3 would appear as 2, 2 as 1, 1 as 0, 0 as 1, 1 as 2, 2 as 3, &c.; where the negative terms denote the reverse rotation. 0 as 1 represents the first case supposed, in which the hull, keeping the same inclination, appears to the spectator as a rotation. 1 as 0 represents the Moon's motion, one rotation appearing as stationary. It also explains what appears, at first sight, to be an anomaly; viz., that *two* rotations and *no* rotation both appear as *one* rotation. These appearances will be evident by referring to the discs. That bodies necessarily rotate in the same direction in which they revolve, unless acted upon by an extraneous force, may be shown by floating a piece of cork, about the size of a shilling, with a line marked across it as a diameter, upon some water that has been stirred round. If the motion be feeble, the cork will simply float round: with a stronger motion it will rotate, slowly or swiftly, according to the force impelling it; but the rotation will always be in the direction of the current. Should the cork come in contact with the edge of the vessel containing the water, it will begin to rotate in the opposite direc-

tion. The radiating force, therefore, of the Earth upon the Moon appears to be so nicely adjusted to her weight and distance, as to turn her round upon her axis once, and once only, during a revolution; whereas the superior propulsive action of the Sun upon the Earth causes her to rotate 366 times during her revolution. Arguments derived from the revolving parts of machinery have led to false conclusions, from the fact having been overlooked that the parts of such machinery are necessarily *connected;* whereas bodies rolling through space are *unconnected.* The governor-balls of a steam-engine can have no *axial* rotation; they are but portions of a whole, the axis of which lies in the central upright rod to which they are connected. A cut decanter or tumbler may be carried round a plate, and made to rotate like the vessel round the buoy; the axis then lies in the tumbler: let it, by any means, be connected with the plate, and the plate turned round, the axis immediately quits the tumbler, and becomes transferred to the plate. In the swings used at fairs, in which four boats are carried vertically round a circle, the boats, by reason of their weight, are *disconnected* from the motion of the machinery; the consequence is, they have revolution without rotation, and present every part of their surface successively to the centre.—I am, Sir, your obedient Servant, THOMAS KENTISH.

College House, Hackney Road, London.

PRACTICAL HINTS FOR SCRIPTURE LESSONS.—No. 4.

"WHY did St. John write the Apocalypse in the isle of Patmos?" Will any rational being, twenty years hence, believe that this question was actually and seriously asked of a very ignorant class of poor children by the clergyman of a large parish, in a school which he specially superintended? We devoutly hope not. We are full of sanguine hopes as to the progress of sound, practical, sensible education; and we trust, that in far less than twenty years' time such an example of utter ignorance of educational requirements for the poor will be so rare, that if exhumed and held up to the light, it would be deemed a fossil relic of mediæval teaching, confined to monastic days, when intelligence was illicit, and popular understandings were to be kept carefully benighted, knowledge being made unintelligible to the many, lest it should cease to be the privilege of the few. The writer of this paper has examined several hundreds of our schools for the poor, and has had rather unusually large means of knowing how religious knowledge is imparted to children of the middle and higher classes; and he has no scruple in saying, that to a very large proportion of the children no available religious instruction is imparted. The scriptural education is given exactly as any dry science would be taught,—by axioms and formulæ, together with chips and parings of history, and a due sprinkling of useless chronology. Parrots would be just as proficient, if they could only chatter enough. The Rev. Mr. Brookfield, H.M.'s Inspector for a large section of England, gives this specimen of the performance of scholars who had gone through the regular school-mill, pounded and crammed, as follows:—

SCHOLAR No. 1.—"My duty toads God is to bleed in him to fering, and to loaf withold your arts, withold my mine, withold my sold, and with my sernth to wirchp," &c. &c.

SCHOLAR No. 2 (by an "intelligent boy").—"They did promis and voal three things in my name, first, that I should pernounce of the devel and all his walks, pumps and valities of this wicked wold, and all the sinful larsts of the flesh," &c.

SCHOLAR No. 3.—"My dooty tords my nabers to love him as thyself, and to do to all men as I wed them shall do and to me—to love, onner, and suke my father and mother—to onner and bay the Queen, and that are pet in a forty under her—to smit myself to all gooness, teaches, sportial pastures, and marsters," &c. &c.

These are not merely verbal mispronunciations; they are exact copies of what was written down deliberately on slates. Mr. Brookfield makes some very sensible remarks on the matter. If these blunders were, he says, merely such as might occur by reading aloud with rapid utterance and foggy articulation, the evil would not lie very deep; but they are written errors, which nothing but entire non-apprehension of the meaning can account for. And he adds, that in all probability, had these boys repeated the same answers, *vivâ voce*, in a Midsummer examination, they might have carried off their spelter prize-medals for intelligence, good conduct, and general assiduity. Such is the humbug of rote teaching: and Mr. Brookfield well says of the Catechism, that "it is (most properly) required by our Church to be taught; but I do not consider that getting it off by sound fulfils the condition of teaching." Is it not monstrous that it is still necessary to repeat this palpable truth? He adds, and here is the gravamen of the evil, that he shall be prone to report the religious instruction in schools as *satisfactory*, when he "has the *satisfaction*" of the parochial clergyman's acquiescence in the verdict that it approximates to the prevailing standard! Nothing can justify this; nor can we agree that satisfaction ought to be comparative. It must be positive, and dissatisfaction also, or there is very little progressive improvement to be gained by inspection and its awards. But what shall we say of clergymen who issue these certificates, indorse these bills of health, and put their impress on counterfeit coin? This: that it is at the very root of the mischief! They, of all others, are bound to probe the religious teaching in their schools, and test whether it be a reality or a mockery. Let each priest or deacon who feels a doubt on the matter (and their doubts are prudential virtues on such a subject) go forthwith to their schools, and closely examine into the thing. Let them, discarding all rote answers, ply each child severally, especially the younger and lower-class children, with questions such as these:—

How did Christ's death atone for sins? Would a man's death have done so? Why not? Explain atonement? Explain what is meant by a ransom for sin? Give Scripture proofs that grace is needful for salvation? Also that it is sufficient for salvation? What must we do to get the benefit of Christ's death? What is the meaning of the parable of the Ten Virgins? What does it teach us as to grace? What is meant by living waters? Prove that all may have it who will? What is the best proof of our love to God? What did Christ live for? What was the purpose of his example? How did he show us that we should forgive enemies? Whom did he forgive? Whom did he ask God to forgive? When and where? What parable teaches the same duty? What part of the Lord's Prayer? Who alone can forgive us our sins? What part of what Commandment teaches us to work hard on week-days? Which teaches us to respect God's holy name? What part of the Lord's Prayer? What is meant by the words, "There is no health in us?" Give texts showing the frailty of human nature? Which

parable shows the duty of humble reliance on God's mercy, and not on man's merit? Which petition in the Lord's Prayer expresses it? Which declares our submission to God? How did Jesus exemplify this, and where, and under what trying circumstances? How did our Lord set us an example of keeping the Fifth Commandment, and what are the words in which his obedience to his earthly parents is stated? Which Commandment forbids covetousness? What does it mean? Distinguish this sin from simply wishing for a thing? What other Commandment does a breach of the Tenth Commandment tempt us to commit? How may we break the Sixth Commandment without killing and without a blow? How can we lessen the power of temptation? What is the meaning of the parable of the Importunate Widow? What does the Prodigal Son teach us? Give an example of remorse which was not repentance? What do the miracles prove? Explain the words, "inheritor of the kingdom of heaven?" What are pomps and vanities? Which Commandment forbids the sinful lusts of the flesh? Which are the two Sacraments? Why are they needful to salvation? When was each appointed? What is the inward part in each? What is meant by grace? What by faith? Distinguish nominal and saving faith? What Commandments did Judas Iscariot break? How did he break each, and give the proofs of each breach of them? Mention ways in which the First, Ninth, and Tenth Commandments might be broken?

These, and hosts more of such questions, should be applied, worded as simply as possible, to test the *comprehension*, by the children, of what they have learnt. If skilfully done, these, and such-like, will rapidly and easily disclose the exact state of their knowledge. The judicious examiner will follow any new course of inquiry suggested by the child's answer, so as to do full justice to all he knows, and to copiousness of information on particular subjects; for, though these are not to be cultivated, they are always to be accredited as so much in the stock of knowledge acquired.

Again, let us suggest that the silent system of holding out hands by all who think they can answer, is the only effectual way of testing a class, the teacher invariably selecting of these the least-instructed child to answer first. If that answer be deemed right by the others, they are to drop their hands; if wrong, they keep them up, and the question proceeds upwards till it is disposed of. To allow immediate *vivâ voce* answers is to insure deception as to the real knowledge of a class; for the herd will always echo the answer of the bell-wether; and the daws thus pass muster under the feathers of the peacocks of the school.

A cheerful manner is essential even on sacred subjects. Great care should be taken to avoid clothing religion in mourning. Surely, glad tidings should not be dolefully taught! The sepulchral voice and funereal manner, with which some good people moan and sigh over them, awe children, and deter religious affections very mischievously. *Verb. sap.*

(To be continued.)

A CHAPTER ON A B C.

(*Continued from p.* 184.)

2. *Names.*—The general identity of the names of the letters in the Greek and Hebrew alphabets is unquestionable. It requires very little acquaintance with the latter language to recognize *Aleph* and *Alpha* as forms of the same word; the addition of the final *a* is familiar to us from several instances in the New Testament (*e. g. Abb-a, Tabith-a*), and the omission of the intermediate *e* after this addition is common. These mutations will explain the difference in the majority of the names; the variations most noticeable are the following:—*Gimel*=*Gamma*; *Zain*=*Zeta*; *Ayin*=*O*; *Resh*=*Rho*; and *Shin*=*Sigma*. Of these five, three occur in cases where the Hebrew name terminates in *in* (will any of our readers suggest an explanation of this termination?), and there seem, on this account, *primâ facie* grounds for supposing that these were not the *original* names of the letters, but that there were names more nearly corresponding with the Greek; such as *Zeth*, *Ay*, and *Sigel*. *Gimel* and *Gamma* are evidently the same; in the case of *Rho*, the Greeks apparently derived the designation from the sound of the letter, which resembled a dog's snarl, and which obtained for it the title, *littera canina*.

Had these names any signification? Some of them certainly, and all of them probably, indicated the objects from which the forms were borrowed. We shall assume, for the present, that all letters were originally of a hieroglyphic character, *i. e.*, they were pictures of the objects which men wished to describe. What more natural than that the names of those objects should be transferred to the signs of them? At the present time, indeed, we are not able to expound all these names—at least the writer of these pages is not able to do so; but the meaning of some is well known. *Aleph*, for instance, means an *ox*; *beth*, a *house*; *gimel*, a *camel* (?); *daleth*, a *door*; *ayin*, an *eye*; *mem*, *water*, &c. The appropriateness of these names will appear when we come to discuss the forms. Meanwhile, the question suggests itself,—How is it that these names have not been preserved in the Latin language, and so handed down to us? We venture to suggest that the maintenance of the names among the Greeks is due to their frequent intercourse with the Phœnicians and other Eastern nations; that this intercourse had a considerable influence upon the alphabets is plain from the universally credited story, that Cadmus was the first to introduce letters into Greece. Without receiving this statement in its crude form, it must be allowed, at all events, that the Greeks derived something from the Phœnicians at the era referred to, and it is by no means unlikely that the names were then introduced. But no such communication existed between Italy and Phœnicia; the forms were introduced; but the forms, having lost their hieroglyphic meaning to the minds of the Latins, lost also the names which commemorated their connection with the objects whence they were derived.

3. *Forms.*—The origin of letters has been referred to in the foregoing section; the forms were suggested by the ordinary objects of nature; they were used, in the first case, as monograms, and thence were transferred to represent the simple sounds, which were most characteristic of those objects. It is not easy to establish the connection between the

forms as they at present exist, and the objects whence they were borrowed, partly from the great changes that have taken place in the forms themselves, and partly from our ignorance of the prototypes of the forms. Yet there is sufficient for the purpose of illustration. The name *ayin*, would seem to indicate the *eye* as the object pictured in the letter; and surely the corresponding letter in our alphabet (O) is no bad representation of an eye. The name *mem* indicates *water;* and the character of the object is not inaptly shadowed forth in the *wavy* form which the letter M has retained in our own and other languages. *Daleth* means a door; and the form of *delta* is an exact picture of a *tent-door*, the entrance with which the Easterns were first acquainted. And so, no doubt, all the letters would have been *pictures* or *symbols* of certain outward objects with which man was most familiar in a rude state of society.

The variations in these forms are due to various causes; among which we may specify, as most important, the substance and the instrument used in writing, the direction in which the writing was carried on, and the all-important question of convenience. Letters that were incised with the chisel on stone were necessarily angular; while those written on linen or any other yielding substance would be curved. The thickness of the strokes would depend on the instrument used: a pen or split reed makes the strokes alternately thick and thin, a hard point or chisel preserves throughout the same thickness. There were various modes of writing: Hebrew and Etruscan ran from right to left; Latin, with a few exceptions, from left to right; Greek in various directions, sometimes *columnwise*, *i. e.* in perpendicular lines, sometimes to the left, sometimes to the right, and sometimes alternately from left to right and from right to left, described by the term *βουστροφηδον*, *i. e. ploughing-fashion;* the usual manner, however, was from left to right. We cannot but suppose that the shapes of the letters were very much modified by the direction in which they were written. Lastly, how much convenience and the necessity of rapidity has influenced the forms of letters will appear from a comparison of our capital letters and the same letters as used in our running hand.

The similarities between the forms of the Latin and Greek letters did not escape the observation of the Ancients. Pliny remarks, "Veteres Græcas fuisse easdem pæne quæ nunc sunt Latinæ, indicio erit Delphica tabula antiqua æris quæ est hodie in Palatio." Dionysius also describes the pillar of Servius Tullius as *γραμμάτων ἔχουσα χαρακτῆρας Ἑλληνικῶν, οἷς τὸ παλαιὸν ἡ Ἑλλὰς ἐχρᾶτο.* The variations in the forms of the Greek and Latin letters are for the most part easily explained; and if we could have presented our readers with the more ancient and obsolete forms of the Greek, the various stages of change would have been clearly discernible. For instance, *gamma* (Γ) appears in some of the alphabets with its two lines inclined at an obtuse instead of a right angle, very much like the double stroke in our K, and then the angle gradually lapsed into the curve of the C, as was natural on a soft material. The same explanation can be given of *delta* (Δ) as compared with D; let the position of the letter be altered so as to stand on one of its angles instead of one of its sides, and then it will present to the eye a perpendicular, with lines starting from each extremity and converging to an angle: the angle, as before, degenerates into a curve, and the letter

A CHAPTER ON A B C.

(*Continued from p.* 184.)

2. *Names.*—The general identity of the names of the letters in the Greek and Hebrew alphabets is unquestionable. It requires very little acquaintance with the latter language to recognize *Aleph* and *Alpha* as forms of the same word; the addition of the final *a* is familiar to us from several instances in the New Testament (*e. g. Abb-a, Tabith-a*), and the omission of the intermediate *e* after this addition is common. These mutations will explain the difference in the majority of the names; the variations most noticeable are the following:—*Gimel*=*Gamma; Zain*=*Zeta; Ayin*=*O; Resh*=*Rho;* and *Shin*=*Sigma.* Of these five, three occur in cases where the Hebrew name terminates in *in* (will any of our readers suggest an explanation of this termination?), and there seem, on this account, *primâ facie* grounds for supposing that these were not the *original* names of the letters, but that there were names more nearly corresponding with the Greek; such as *Zeth, Ay,* and *Sigel. Gimel* and *Gamma* are evidently the same; in the case of *Rho,* the Greeks apparently derived the designation from the sound of the letter, which resembled a dog's snarl, and which obtained for it the title, *littera canina.*

Had these names any signification? Some of them certainly, and all of them probably, indicated the objects from which the forms were borrowed. We shall assume, for the present, that all letters were originally of a hieroglyphic character, *i. e.,* they were pictures of the objects which men wished to describe. What more natural than that the names of those objects should be transferred to the signs of them? At the present time, indeed, we are not able to expound all these names —at least the writer of these pages is not able to do so; but the meaning of some is well known. *Aleph,* for instance, means an *ox; beth,* a *house; gimel,* a *camel* (?); *daleth,* a *door; ayin,* an *eye; mem, water,* &c. The appropriateness of these names will appear when we come to discuss the forms. Meanwhile, the question suggests itself,—How is it that these names have not been preserved in the Latin language, and so handed down to us? We venture to suggest that the maintenance of the names among the Greeks is due to their frequent intercourse with the Phœnicians and other Eastern nations; that this intercourse had a considerable influence upon the alphabets is plain from the universally credited story, that Cadmus was the first to introduce letters into Greece. Without receiving this statement in its crude form, it must be allowed, at all events, that the Greeks derived something from the Phœnicians at the era referred to, and it is by no means unlikely that the names were then introduced. But no such communication existed between Italy and Phœnicia; the forms were introduced; but the forms, having lost their hieroglyphic meaning to the minds of the Latins, lost also the names which commemorated their connection with the objects whence they were derived.

3. *Forms.*—The origin of letters has been referred to in the foregoing section; the forms were suggested by the ordinary objects of nature; they were used, in the first case, as monograms, and thence were transferred to represent the simple sounds, which were most characteristic of those objects. It is not easy to establish the connection between the

forms as they at present exist, and the objects whence they were borrowed, partly from the great changes that have taken place in the forms themselves, and partly from our ignorance of the prototypes of the forms. Yet there is sufficient for the purpose of illustration. The name *ayin*, would seem to indicate the *eye* as the object pictured in the letter; and surely the corresponding letter in our alphabet (O) is no bad representation of an eye. The name *mem* indicates *water*; and the character of the object is not inaptly shadowed forth in the *wavy* form which the letter M has retained in our own and other languages. *Daleth* means a door; and the form of *delta* is an exact picture of a *tent-door*, the entrance with which the Easterns were first acquainted. And so, no doubt, all the letters would have been *pictures* or *symbols* of certain outward objects with which man was most familiar in a rude state of society.

The variations in these forms are due to various causes; among which we may specify, as most important, the substance and the instrument used in writing, the direction in which the writing was carried on, and the all-important question of convenience. Letters that were incised with the chisel on stone were necessarily angular; while those written on linen or any other yielding substance would be curved. The thickness of the strokes would depend on the instrument used: a pen or split reed makes the strokes alternately thick and thin, a hard point or chisel preserves throughout the same thickness. There were various modes of writing: Hebrew and Etruscan ran from right to left; Latin, with a few exceptions, from left to right; Greek in various directions, sometimes *columnwise*, *i. e.* in perpendicular lines, sometimes to the left, sometimes to the right, and sometimes alternately from left to right and from right to left, described by the term *βουστροφηδον*, *i. e. ploughing-fashion*; the usual manner, however, was from left to right. We cannot but suppose that the shapes of the letters were very much modified by the direction in which they were written. Lastly, how much convenience and the necessity of rapidity has influenced the forms of letters will appear from a comparison of our capital letters and the same letters as used in our running hand.

The similarities between the forms of the Latin and Greek letters did not escape the observation of the Ancients. Pliny remarks, "Veteres Græcas fuisse easdem pæne quæ nunc sunt Latinæ, indicio erit Delphica tabula antiqua æris quæ est hodie in Palatio." Dionysius also describes the pillar of Servius Tullius as *γραμμάτων ἔχουσα χαρακτῆρας Ἑλληνικῶν, οἷς τὸ παλαιὸν ἡ Ἑλλὰς ἐχρᾶτο*. The variations in the forms of the Greek and Latin letters are for the most part easily explained; and if we could have presented our readers with the more ancient and obsolete forms of the Greek, the various stages of change would have been clearly discernible. For instance, *gamma* (Γ) appears in some of the alphabets with its two lines inclined at an obtuse instead of a right angle, very much like the double stroke in our K, and then the angle gradually lapsed into the curve of the C, as was natural on a soft material. The same explanation can be given of *delta* (Δ) as compared with D; let the position of the letter be altered so as to stand on one of its angles instead of one of its sides, and then it will present to the eye a perpendicular, with lines starting from each extremity and converging to an angle: the angle, as before, degenerates into a curve, and the letter

becomes D. The Latin F, we need hardly observe, exactly corresponds with the form of *digamma*. G is only another form of C: it was introduced into the Latin alphabet to express the soft C, after this letter had been reserved exclusively for the hard sound of K. *Lambda* (Λ) and L appear at first sight to have little in common; but compare the small form λ of the Greek, and it will become the connecting link between the two: in this case, as in *delta*, the position of the angle has been subject to great variation. *Xi* (Ξ) has no representative in the Latin alphabet, X being allied both in form and, as we have already observed, in original power to *Chi*. *Pi* (Π) and P are easily identified; in many, indeed in most, of the Greek alphabets the right-hand stroke in this letter is not brought down to the line, but stops midway; in the Latin a curve inwards was given to the short leg, though not usually so far as to meet the perpendicular. Q is similar to the antiquated *koppa*. With regard to R, the only observation that we need make, is that the lower part of it, which distinguishes it from *Rho* (P) is not peculiar to the Latin alphabet, but appears in some of the old Greek inscriptions. *Sigma* (Σ) and S afford another exemplification of the tendency of angles to become curves. U, V, and Y owe their parentage to *upsilon* (Υ): of the three, Y is the most exact representation; the difference being, that the Latin has preserved the angular instead of the rounded form. It is needless to add that our own W has the same origin. In conclusion, Z is not properly a member of the Latin alphabet; its form as well as its sound was derived from the Greek. W. L. R.

(To be continued.)

A OR *AN* USAGE ACT.

AN ACT

To fix and determine the practice in the use of the Indefinite Article A or AN, and for no other purpose.

Preamble.

WHEREAS there exists considerable diversity of practice in the use of the indefinite article A or AN, and it is right and expedient that the use of each form of the said article should be definitely and accurately fixed and determined;

And whereas the original form of the said article was AN, the same being the Saxon word for the numeral *one*, and the said original form was subsequently abbreviated and curtailed to A, for the sake of euphony, before all the letters termed consonants, except mute *h*;

And whereas the letters *y* and *w*, when initial, are, for all practical intents and purposes, taken to be and considered as consonants, and therefore require and constantly receive the aforesaid abbreviated form A of the article before them;

And whereas a certain letter commonly called a vowel, that is to say, *u* as enunciated in *union*, and certain combinations of letters usually designated as diphthongs, composed of the letter *e* in conjunction with the letter *u* or *w*, have and include within themselves the sound of initial *y* as aforesaid;

And whereas the words *one* and *once* are enunciated exactly as if they

commenced with the letter *w*, though the same is not employed in their orthography;

And whereas it is not customary or elegant to pronounce an initial *h*, and it is scarcely possible to do so effectively, in words accented on the second syllable, such as *historian, heroic, heraldic:*

Be it therefore Enacted by the Reader's Most Eminent Sagacity, according to the advice and intent of the Words Logical and Rational and Common-sense in this present Parody assembled, and by the authority of the same, as follows (that is to say):

Short Title.

I. That it shall be sufficient for all purposes to cite this Act as "The A or AN Usage Act, 1856."

Use of the Form A.

II. That the form A of the indefinite article shall be and continue to be used before words commencing with any consonant whatever, except mute *h*, and also before words commencing with the letters *y* and *w*, which, in so far as the purpose of this Act is concerned, shall be taken to be and accounted consonants; and further, that the said form A shall also be used before such words as commence with the sound of *y* or *w*, notwithstanding such letter may not be employed in the orthography thereof; and that Schedule A hereinafter contained shall be considered as exemplifying the intent of this clause.

Use of the Form AN.

III. That the form AN of the indefinite article shall continue to be used, as it hath heretofore been, before all vowels, excepting and excluding such vowels as involve and contain the sounds of initial *y* and *w*, referred to in the second clause of this Act; and the said form shall likewise continue to be used before mute *h*, and before *h* at the beginning of all words accented on the second syllable, as hath hitherto been customary with the most correct and elegant writers and speakers; and, moreover, that Schedule AN shall be taken as exemplifying the meaning of this clause.

SCHEDULE A, *hereinbefore referred to.*

The form A to be used before—

1. Consonants	A man, a table, a room, a tree;
2. Aspirated *h*	A hair, a horse, a house, a hero;
3. The letters *y* and *w* .	A yew, a youth, a wire, a wonder;
4. The sounds of *y* and *w*.	A ewe, a eulogy, a union, such a one.

SCHEDULE AN, *hereinbefore referred to.*

The form AN is to be used before—

1. Vowels not containing the sound of initial *y* or *w* . . .	An air, an onion, an ear, an ell;
2. Mute *h* . . .	An heir, an hour, an hospital;
3. The letter *h* in words accented on the second syllable . . .	An historian, an heresiarch, an heroic deed.

W. R. E. ("*Ein Yôm Li.*")

Notes of New Books.

Dissertation on Sacred Chronology. By the Rev. Nathan Rouse. Pp. 64. London: Longmans, 1856.

An exceedingly learned work; we differ, however, with the views of the author on Inspiration; but to go into the subject would take us far out of our legitimate sphere.

Walkingame's Tutor's Assistant. By J. R. Young. Pp. 167. The Eighth Thousand. London: Routledge. 1856.

Old friends in a new dress. We cannot see what inducements can have led to the restoration of this venerable relic of antiquity, consecrated, indeed, by the tears of thousands. The editor expresses his desire to leave the ancient design untouched; and the work remains with its quaintly-worded questions as in old time, yet apparently without explanations, or rationale, or anything to make boys think. There may be teachers who envy the life of an old horse going round in a mill, and there may therefore be a reason for reproducing for them the ancient enemy of their own childhood.

Practical Perspective. By R. Burchett, Head Master of the Training and Normal School. Pp. 102. London: Chapman & Hall, 1856.

This is a valuable addition to the school-books which teach perspective. The rules are clear, and the science of drawing accurately defined. We can confidently recommend it.

The Georgics, with Notes. By J. E. Sheridan. Pp. 316. London: S. J. Machen.

The editor has endeavoured, and we think successfully, to produce the Georgics in their most complete form, the criticism, both of the text and the matter, being brought up to the present time. Mr. Sheridan has adopted the readings of Wagner in his last edition; in the margin of the text he has introduced references to parallel passages in Virgil's works, so that the careful student may make the poet his own interpreter; a most elaborate commentary follows, in which are embodied the learned researches of Heyne, Voss, Wagner, Forbiger, and Anthon; and at the conclusion there is a blank index, which the student is intended to fill up with such references as he deems worthy of further observation. To those who make the Georgics a text-book (and no classical poem has higher claims to be made a text-book), this edition will be highly welcome.

*** Several Notices stand over till Next Month.

SERIALS RECEIVED.

Fraser's Magazine, Squitch, The Two Cottages, The Politician.

Questions and Answers.

INTELLIGENCE IN TEACHING.—Be so good as to give me rules for making children understand what they learn.—*P. T. H.*

Answer.—This is *the* Gordian knot. It is infinitely more difficult than to judge what should be taught. But that is a primary question. Teach that only which will be really and practically useful to the class of children you are teaching. Make them feel and appreciate its usefulness if possible. This will incline them to learn it. The next point is to simplify your explanations, avoiding all abstract dogmas which are not thoroughly explained. Then strive to make each subject as interesting as possible to the child's mind and taste. Descriptions effect this best, interspersed with anecdotes and life-like applications. Question closely upon your explanation, and never rest till you are satisfied that each child, *especially the dullest*, comprehends you. These are but very general hints; but they comprise more than they seem to do. One word more: *either love teaching yourself, or give it up.*

CORPORAL PUNISHMENT.—Should this, in your opinion, ever be resorted to; and if so, under what circumstances?—*A Parent.*

Answer.—There are occasions which *may* justify it. We are constrained to think so very reluctantly. Nothing but excessive falsehood, or other very vile sins, can, however, warrant it: but wherever shame exists, and there is heart and affection to appeal to, every effort should be made to avoid so dreadful an alternative. There is more child-beating in England than in any other highly-educated country, to our great disgrace be it said; and whenever it is given, it is inflicted at once. Instead of waiting two or three hours, and then letting the child see the deep pain it causes the parent, it is almost invariably inflicted in a passion and as a retaliation.

PARAPHRASING AND PARSING.—Will you be so good as to parse this passage for me?—*A Teacher.*

Answer.—No; we are sorry to refuse: but it would not interest or instruct any of our readers.

Intelligence.

UNITED ASSOCIATION OF SCHOOLMASTERS.

ORDINARY General Meeting, held at St. Martin's Hall, May 3rd, 1856. After a Lecture by the Rev. C. R. Alford, of Highbury College, on the Character of the Teaching of our Lord, the following Resolution was proposed by Mr. Tilleard:—

"That we have much satisfaction in congratulating our esteemed President, Mr. Thomas Tate, on the pension which has recently been awarded to him by her Majesty's Government, in consideration of his long-sustained and successful labours as a teacher, and the many excellent educational works which he has written. We regard the award of this pension, not only as a recognition of the eminent services of Mr. Tate in the cause of elementary education, but also as a tribute to the public usefulness of the scholastic profession."

Mr. Tilleard said it was with unfeigned pleasure that he congratulated the President of the Association upon a reward due to a long period of faithful service. As an old Battersea student, he well remembered the zeal, energy, and earnestness which pervaded Mr. Tate's teaching, and for its advantages he felt deeply grateful; for, although he had been pupil to many teachers, it was not until he had Mr. Tate's lessons that he knew what it was to be taught. So vivid and clear were the impressions made by Mr. Tate, that all difficulties vanished when he appeared with his chalk and board. Of Mr. Tate, as an instructor, numbers of schoolmasters were ever ready to bear willing testimony—his patience and sympathy had endeared him to the hearts of all who heard him.

Notes of New Books.

Dissertation on Sacred Chronology. By the Rev. Nathan Rouse. Pp. 64. London: Longmans, 1856.

An exceedingly learned work; we differ, however, with the views of the author on Inspiration; but to go into the subject would take us far out of our legitimate sphere.

Walkingame's Tutor's Assistant. By J. R. Young. Pp. 167. The Eighth Thousand. London: Routledge. 1856.

Old friends in a new dress. We cannot see what inducements can have led to the restoration of this venerable relic of antiquity, consecrated, indeed, by the tears of thousands. The editor expresses his desire to leave the ancient design untouched; and the work remains with its quaintly-worded questions as in old time, yet apparently without explanations, or rationale, or anything to make boys think. There may be teachers who envy the life of an old horse going round in a mill, and there may therefore be a reason for reproducing for them the ancient enemy of their own childhood.

Practical Perspective. By R. Burchett, Head Master of the Training and Normal School. Pp. 102. London: Chapman & Hall, 1856.

This is a valuable addition to the school-books which teach perspective. The rules are clear, and the science of drawing accurately defined. We can confidently recommend it.

The Georgics, with Notes. By J. E. Sheridan. Pp. 316. London: S. J. Machen.

The editor has endeavoured, and we think successfully, to produce the Georgics in their most complete form, the criticism, both of the text and the matter, being brought up to the present time. Mr. Sheridan has adopted the readings of Wagner in his last edition; in the margin of the text he has introduced references to parallel passages in Virgil's works, so that the careful student may make the poet his own interpreter; a most elaborate commentary follows, in which are embodied the learned researches of Heyne, Voss, Wagner, Forbiger, and Anthon; and at the conclusion there is a blank index, which the student is intended to fill up with such references as he deems worthy of further observation. To those who make the Georgics a text-book (and no classical poem has higher claims to be made a text-book), this edition will be highly welcome.

*** Several Notices stand over till Next Month.

SERIALS RECEIVED.

Fraser's Magazine, Squitch, The Two Cottages, The Politician.

Questions and Answers.

INTELLIGENCE IN TEACHING.—Be so good as to give me rules for making children understand what they learn.—*P. T. H.*

Answer.—This is *the* Gordian knot. It is infinitely more difficult than to judge what should be taught. But that is a primary question. Teach that only which will be really and practically useful to the class of children you are teaching. Make them feel and appreciate its usefulness if possible. This will incline them to learn it. The next point is to simplify your explanations, avoiding all abstract dogmas which are not thoroughly explained. Then strive to make each subject as interesting as possible to the child's mind and taste. Descriptions effect this best, interspersed with anecdotes and life-like applications. Question closely upon your explanation, and never rest till you are satisfied that each child, *especially the dullest*, comprehends you. These are but very general hints; but they comprise more than they seem to do. One word more: *either love teaching yourself, or give it up.*

CORPORAL PUNISHMENT.—Should this, in your opinion, ever be resorted to; and if so, under what circumstances?—*A Parent.*

Answer.—There are occasions which *may* justify it. We are constrained to think so very reluctantly. Nothing but excessive falsehood, or other very vile sins, can, however, warrant it: but wherever shame exists, and there is heart and affection to appeal to, every effort should be made to avoid so dreadful an alternative. There is more child-beating in England than in any other highly-educated country, to our great disgrace be it said; and whenever it is given, it is inflicted at once. Instead of waiting two or three hours, and then letting the child see the deep pain it causes the parent, it is almost invariably inflicted in a passion and as a retaliation.

PARAPHRASING AND PARSING.—Will you be so good as to parse this passage for me?—*A Teacher.*

Answer.—No; we are sorry to refuse: but it would not interest or instruct any of our readers.

Intelligence.

UNITED ASSOCIATION OF SCHOOLMASTERS.

ORDINARY General Meeting, held at St. Martin's Hall, May 3rd, 1856. After a Lecture by the Rev. C. R. Alford, of Highbury College, on the Character of the Teaching of our Lord, the following Resolution was proposed by Mr. Tilleard:—

"That we have much satisfaction in congratulating our esteemed President, Mr. Thomas Tate, on the pension which has recently been awarded to him by her Majesty's Government, in consideration of his long-sustained and successful labours as a teacher, and the many excellent educational works which he has written. We regard the award of this pension, not only as a recognition of the eminent services of Mr. Tate in the cause of elementary education, but also as a tribute to the public usefulness of the scholastic profession."

Mr. Tilleard said it was with unfeigned pleasure that he congratulated the President of the Association upon a reward due to a long period of faithful service. As an old Battersea student, he well remembered the zeal, energy, and earnestness which pervaded Mr. Tate's teaching, and for its advantages he felt deeply grateful; for, although he had been pupil to many teachers, it was not until he had Mr. Tate's lessons that he knew what it was to be taught. So vivid and clear were the impressions made by Mr. Tate, that all difficulties vanished when he appeared with his chalk and board. Of Mr. Tate, as an instructor, numbers of schoolmasters were ever ready to bear willing testimony—his patience and sympathy had endeared him to the hearts of all who heard him.

Mr. Tate's reputation rested not alone on his great abilities as a teacher, nor was it confined to the walls of his college; but he was the author of a series of Educational Works which had spread his name throughout the empire.

The numerous works for which his perseverance has found time, amid his official duties, embraced almost the whole range of secular instruction. Mr. Tilleard showed a few of the peculiar excellencies of the works, and observed that it would be a profitable exercise, to discover those principles and methods which render these books so far superior to other school-works.

In Mr. Tate were combined the mathematician and the teacher—no subject was too abstruse for him to simplify, analyze, and illustrate; he unveiled the mysteries of science to thousands whose position would have condemned them to remain ignorant of its truths. His efforts had been concentrated on the education of the poor in those branches of science that are connected with the common pursuits of life.

Mr. Tilleard complained of the propounders of Common Things, for ignoring the exertions of Pestalozzi, Mayo, and Tate. There certainly was this grand difference between them—that Mr. Tate uniformly advocated the exposition of those principles on which Common Things depend, whereas the knowledge of mere facts was the great aim of the other party.

Mr. Tilleard considered that the Association might congratulate itself, that one of the profession had been recognized by the Government as deserving the honours and rewards of the State. It was a public acknowledgment of his merits as a teacher of the poor; and it encouraged teachers to hope that the day was not distant when the Government would be more ready to appreciate the labours of those whose energies were devoted to the advancement of the highest interests of the nation.

Mr. Tilleard pointed out the destinction to be observed between Mr. Tate's pension and those granted under the recent minutes—in the latter case they were granted in order to get rid of an inefficient or worn-out man, whereas in the former case it was an honourable reward for valuable services in the cause of popular education.

Mr. Tilleard remarked that Mr. Tate had caught the spirit of a man to whom this country was infinitely indebted for his exertions in establishing the present system of Government education. He referred to Sir J. Kay Shuttleworth, a man whose enthusiasm communicated itself to all within his circle. He trusted that the members of the Association might receive a similar impulse from their worthy President, and concluded in reciting the following lines:—

"Lives of great men all remind us
We can make our lives sublime,
And, departing, leave behind us
Foot-prints in the sands of time.

"Foot-prints that perhaps another,
Sailing o'er life's solemn main,
A forlorn and shipwreck'd brother,
Seeing, shall take heart again.

"Let us then be up and doing,
With a heart for any fate,
Still achieving, still pursuing,
Learn to labour and to wait."

Mr. Coghlan seconded the resolution with very great pleasure. He had not had the privilege of Mr. Tate's private friendship, but only looked upon him from the outside.

Mr. Coghlan spoke of Mr. Tate as a man who had signalized himself by originality; one who in the educational world had had few rivals. He rejoiced at his good fortune, and looked forwards for future works to ease the toils of teaching. He was sure, that although many might be emulous of his fame, none would be envious of his reward.

Mr. Braid supported the motion, and expressed his great gratification that Mr. Tate should have been honoured as a schoolmaster by the State.

Mr. Simpson cordially coincided with the Resolution, and briefly complimented the President on being the first gentleman whose services as an educator the Government had recognized.

Mr. Hind testified to the kindly feeling with which the President was regarded by those whom he had instructed. Mr. Hind's sons had had the advantage of attending Mr. Tate's lectures at Battersea. He felt quite unable in Mr. Tate's presence, to express the deep sense of gratitude with which his memory was cherished by his pupils.

Mr. Dambree (Chairman) thought they ought to derive some benefit from the consideration of the subject. What were the principles on which Mr. Tate had constantly proceeded in his successful career? Principle constituted the difference between the philosopher and the empiric. Mr. Tate (he said) was an educational philosopher; whatever the subject he undertook to examine, he had broken it in pieces by the hammer of principle, not picking it to bits here and there. The manner in which Mr. Tate had persevered from year to year was worthy of admiration. He exhorted the members to act on principle in imparting instruction, to avoid all approach to quackery (because education did not consist in a bundle of methods, but was eminently a science), to extend the application of the great truths laid down by Mr. Tate, and thereby advance the best interests of the country.

The motion was carried by acclamation.

Mr. Tate very briefly acknowledged the compliment in a speech of deep feeling; he had no intention of leaving the Society, and hoped to show in future years that he was not unworthy of their regards.

W. H. Smith, *Minuting Secretary.*

The next and last meeting of the present session of the Association will be held in St. Martin's Hall, on Saturday, the 7th June, at 6 o'clock, when Mr. F. R. Crampton will read a Paper on the Government of Pupil-Teachers.

St. Thomas, Charterhouse, New School.—The ceremony of laying the foundation-stone of the new School of St. Thomas, Charterhouse, Golden Lane, was performed on the 8th ult., at one o'clock, by Mr. W. E. Gladstone, M.P., in the absence of the Marquis of Lansdowne, who was unable to attend.

The existing schools of St. Thomas, Charterhouse, were established for the purpose of educating the children of the costermongers and poor inhabitants of Golden Lane and Whitecross Street. They consist of an Upper School for Boys, a Second Boys' School, a Girls', and an Infant School. The number of children in actual attendance at these schools

was, at the late visit of H.M.'s Inspector of Schools, in September last, 919. There are also attached to this establishment evening classes for men and women, and evening schools for boys and girls: the number attending these is 500. These schools, both day and evening, are for the most part self-supporting. Unfortunately, however, though many of the poorest children are admitted free, these schools have not reached the lowest class of children, of whom there are still 2,386 between the ages of three and fourteen who do not attend any school whatever. To meet this deficiency, the present school has been promoted. A freehold site in Golden Lane was procured, and plans prepared by Mr. Hesketh for a building containing three school-rooms, and capable of accommodating 1,000 children. The cost of this building (including purchase-money of site for building and play-ground, £2,200) is estimated at £8,452. Two-thirds of this, viz. £5,634. 13*s.* 4*d.*, will be defrayed by the Committee of Council. For the remaining third, viz. £2,817. 6*s.* 8*d.*, the treasurer (the Rev. Mr. Rogers, incumbent of St. Thomas, Charterhouse) appeals to the public.

Notices.

Orders and Advertisements must be sent ONLY *to* MESSRS. GROOMBRIDGE, 5, *Paternoster Row; the latter, from strangers, must be accompanied by a remittance, according to the following scale:—If under* 40 *words,* 4*s.*; *for every additional ten words,* 6*d.*; *a whole page,* £2. 2*s.*; *a half-page, or one column,* £1. 5*s.* *No deductions are made.*

The JOURNAL *will be sent, free of postage, for one year, on receipt of* 6*s.* 6*d.* *in advance.*

*** *This Journal is now Registered for Transmission to Foreign Countries, if Stamped.*

TO CORRESPONDENTS.

M. Nottelle's "French Simplified."—We have received several letters about our review of this book; the gist of which is, that the writers do not agree with us, and think "air," for example, the exact pronunciation of "sœurs." Very likely. We endeavour always to give fair representations of books. In this case we quoted specimens of what we objected to, and this is all that can be required. To insert letters simply denying our conclusions and joining issue with us, whenever we express an unfavourable judgment, would in the end render all criticism impossible, and fill the Journal with opinions and counter-opinions on every book noticed. Parts of the book are deserving of high praise; but there is a practical impossibility in conveying the pronunciation of French to English ears by combinations of letters, which we feel bound to point out and insist on; though M. Nottelle has done it as well as is practicable. "*Lap-loose*' should have been printed, it seems, in the book as *lap-lose.*

"G. W." Already answered in a former number.

"F. J."—"G. M."—"Education of the Citizen"—and "F. F. W." in our next.

"W. R. E." and several other Moon letters are postponed. We can only find room for one on each side of the question this month, and select the fullest.

The Articles on Music and Mental Arithmetic are reluctantly postponed.

ON MENTAL ARITHMETIC.

EXERCISE V.

The Fractional Parts of Numbers expressed in Whole Numbers.

THE HALVES OF DIFFERENT NUMBERS.

One Half of different Numbers.

• •
One half of two is one.
•• ••
One half of four is two.
••• •••
One half of six is three.
And so on.

Three Halves of different Numbers.

• • •••
The half of two is one;
three times the half of two are three times one, or three.
•• •• •• •• ••
The half of four is two;
three times the half of four are three times two, or six.
••• ••• ••• ••• •••
The half of six is three;
three times the half of six are three times three, or nine.
And so on to *three times the half of eight, of ten, of twelve,* &c.

Five Halves of different Numbers.

• • •••••
The half of two is one;
five times the half of two are five times one, or five.
•• •• •• •• •• •• ••
The half of four is two;
five times the half of four are five times two, or ten.
••• ••• ••• ••• ••• ••• •••
The half of six is three;
five times the half of six are five times three, or fifteen.
And so on.

And so on to seven halves, nine halves, &c., of different numbers.

It will be observed, that since two halves, four halves, &c., make whole numbers, the exercise has not been extended to these forms of expression.

Problems.

1. What is three times the half of a shilling, or twelve pence? *Ans.* 1s. 6d.

Proof.—The half of twelve pence is six pence; therefore three times the half of twelve pence are three times six pence, or eighteen pence, which make one shilling and six pence.

2. What is seven times the half of six pence? *Ans.* 1s. 9d.

3. If a lb. of butter cost ten pence; what will be the cost of five half lbs? *Ans.* 2s. 1d.

Proof.—The cost of a half lb. will be the half of ten pence, or five pence; and therefore the cost of five half lbs. will be five times five pence, or twenty five pence, which make two shillings and a penny.

4. What will be the cost of three half lbs. of cheese at eight pence the lb.? *Ans.* 1s.

And so on.

THE THIRDS OF DIFFERENT NUMBERS.

One Third of different Numbers.

•••

One third of three is one.

•• •• ••

One third of six is two.

••• ••• •••

One third of nine is three.

And so on.

Two Thirds of different Numbers.

••• ••

The third of three is one;

two times the third of three are two times one, or two.

•• •• •• •• ••

The third of six is two;

two times the third of six are two times two, or four.

••• ••• ••• ••• •••

The third of nine is three;

two times the third of nine are two times three, or six.

And so on.

Four Thirds of different Numbers.

••• ••••

The third of three is one;

four times the third of three are four times one, or four.

•• •• •• •• •• •• ••

The third of six is two;

four times the third of six are four times two, or eight.

••• ••• ••• ••• ••• ••• •••

The third of nine is three;

four times the third of nine are four times three, or twelve.

And so on.

And so on to *five thirds, seven thirds,* &c., of different numbers.

Problems.

1. How much is two times the third of a shilling, or two thirds of a shilling? *Ans.* 8d.

Proof.—The third of twelve pence is four pence; therefore two times the third of twelve pence are two times four pence, or eight pence.

2. How much is five times the third of six pence? *Ans.* 10d.

3. How many inches are there in two thirds of a foot? *Ans.* 8 inches.

And so on.

THE FOURTHS OF DIFFERENT NUMBERS.

One Fourth of different Numbers.

• • • •
One fourth of four is one.
• • • • • • • •
One fourth of eight is two.
• • • • • • • • • • • •
One fourth of twelve is three.
And so on.

Two Fourths of different Numbers.

• • • • • •
The fourth of four is one;
two times the fourth of four are two times one, or two.
• • • • • • • • • •
The fourth of eight is two;
two times the fourth of eight are two times two, or four.
• • • • • • • • • • • • • • • •
The fourth of twelve is three;
two times the fourth of twelve are two times three, or six.
And so on.

Three Fourths of different Numbers.

• • • • • • •
The fourth of four is one;
three times the fourth of four are three times one, or three.
• • • • • • • • • • • •
The fourth of eight is two;
three times the fourth of eight are three times two, or six.
• • • • • • • • • • • • • • • • • • • •
The fourth of twelve is three;
three times the fourth of twelve are three times three, or nine.
And so on.

And so on to *five fourths, six fourths,* &c., of different numbers.

Problems.

1. How much is three fourths of a pound? *Ans.* 15s.

Proof.—The fourth of twenty shillings is five shillings; therefore three times the fourth of twenty shillings are three times five shillings, or fifteen shillings.

2. How much is three fourths of a shilling? *Ans.* 9d.

3. How many ounces are three fourths of a lb., or sixteen ounces? *Ans.* 12 ounces.

4. What will be the cost of two and one quarter lbs. of meat at eight pence a lb.? *Ans.* 1s. 6d.

5. What is seven fourths of a foot? *Ans.* 21 inches, or 1 foot 9 inches.

And so on.

In the same manner, THE FIFTHS, THE SIXTHS, &c., of different numbers may be gone over.

EXERCISE VI.

RATIOS.—*When the one number is not an exact multiple of the other.*

Two numbers may be compared with each other in the following manner :—

1. When the numbers are simply regarded as multiples of unity, or one.
2. When the numbers are regarded as multiples of two.
3. When the numbers are regarded as multiples of three.
4. When the numbers are regarded as multiples of four.

And so on.

I.—WHEN THE NUMBERS ARE TAKEN AS MULTIPLES OF ONE.

Two compared with other Numbers.

• • • • •
One is the third of three ; two are two times the third of three.

• • • • • •
One is the fourth of four ; two are two times the fourth of four.

• • • • • • •
One is the fifth of five : two are two times the fifth of five.
And so on.

Three compared with other Numbers.

• • •
One is the half of two ; three are three times the half of two.

• • • • • • •
One is the fourth of four ; three are three times the fourth of four.

• • • • • • • •
One is the fifth of five ; three are three times the fifth of five.
And so on.

Four compared with other Numbers.

• • • • • • •
One is the third of three ; four are four times the third of three.

• • • • • • • • •
One is the fifth of five ; four are four times the fifth of five.
And so on.

And so on to FIVE, SIX, &c., compared with other numbers.

Problems.

1. Three are what part of five ? *Ans.* Three are three times the fifth of five, or, we may say, three are three fifths of five.

2. Seven are how many times three ? *Ans.* Seven are seven times the third of three.

3. *If three articles cost six pence ; how much will four articles cost ? *Ans.* 8d.

Proof.—Four are four times the third of three ; therefore four articles

---

* As a help to the pupils, the teacher should occasionally write the data of the question in a concise form on the black board ; thus :—
The cost of 3 is 6d. The cost of 4 is required.

will cost four times the third of three articles: but the cost of three articles is six pence; therefore the cost of four articles will be four times the third of six pence, or eight pence.

Or thus, by the method of division and multiplication appended to Exercise II. :—

The cost of three articles is six pence;
therefore the cost of one article will be the third of six pence, or two pence;
and the cost of four articles will be four times two pence, or
eight pence.

The latter method is the most simple in principle; but, in general, the former method is best suited for mental calculation. A judicious teacher will practise his pupils in the use of both methods.

Or thus. The cost of three articles is six pence;
therefore the cost of twelve articles will be four times six pence, or 24d.;
and the cost of four articles will be the third of twenty-four pence,
or eight pence.

Obs. By this method the order of the operations is changed.

4. If five lbs. of sugar cost one shilling and eight pence; what will twelve lbs. cost? *Ans.* 4s.

Obs. In proposing questions of this kind, at this stage of instruction, it should be observed, that the cost of one article should not involve a fraction.

5. What part of a penny is three farthings? *Ans.* $\frac{3}{4}$, or three times the fourth.

And so on.

Obs. This form of the exercise does not always give the ratio of the numbers in the least terms. The following portions of the exercise give the ratios in a reduced form, although not always in the least terms.

II.—WHEN THE NUMBERS COMPARED ARE TAKEN AS MULTIPLES OF TWO.

This exercise consists in first expressing the numbers as products of two, and thence deriving their ratio in a reduced form.

Four compared with other Numbers.

•• •• •• •• ••
Four are two times two; six are three times two;
four are two times the third of six.

•• •• •• •• •• ••
Four are two times two; eight are four times two;
four are two times the fourth of eight.

And so on to the comparison of *four* with *fourteen, eighteen*, &c.

Six compared with other Numbers.

•• •• •• •• ••
Six are three times two; four are two times two;
six are three times the half of four.

•• •• •• •• •• •• ••
Six are three times two; eight are four times two;
six are three times the fourth of eight.

•• •• •• •• •• •• •• ••

Six are three times two; ten are five times two;
six are three times the fifth of ten.

And so on to the comparison of *six* with *fourteen, twenty, &c.*

In the same manner EIGHT, TEN, TWELVE, &c., may be compared with other numbers.

Problems.

In giving these problems, the dots or marks representing the ratios should be placed on the black board.

1. Fourteen are how many times ten? *Ans.* Seven times the fifth, or $\frac{7}{5}$.

2. Fourteen are what part of twenty? *Ans.* Seven times the tenth, or $\frac{7}{10}$.

3. Six pence are what part of eight pence? *Ans.* Three times the fourth, or $\frac{3}{4}$.

•• •• •• •• •• •• ••

Proof.—Six are three times two; eight are four times two;
therefore six pence are three times the fourth of eight pence.

4. If six eggs cost nine pence; how much will ten eggs cost? *Ans.* 1s. 3d.

Proof.—Ten are five times the third of six; the cost of six eggs is nine pence; therefore the cost of ten eggs will be five times the third of nine pence; the third of nine pence is three pence, and five times three pence are fifteen pence, which is one shilling and three pence.

Or thus. 6 are 3 times 2, and 10 are 5 times 2; therefore to find the cost of 10 eggs I must first find the cost of 2 eggs. Now,—

the cost of 6 eggs equals 9d.,
∴ the cost of 2 eggs = the third of 9d. = 3d.,
and the cost of 10 eggs = 5 times 3d. = 15d. or 1s. 3d.

Or thus. In this question the numbers of the things are 6 and 10. Multiplying 6 and 10 together I get 60; then to find the cost of 10 eggs I must first find the cost of 60. Now,

the cost of 6 eggs equals 9d.,
∴ the cost of 60 eggs = 10 times 9d. = 90d.,
and the cost of 10 eggs = the sixth of 90d. = 15d.

This operation would have been more simple if we had first found the cost of 30 eggs in the place of 60, for 30 is the least common multiple of 6 and 10.

Obs. In the two first methods, the operations are,—first, division and then multiplication; whereas in the last method the order of the operations is changed, that is to say, it consists in,—first, multiplication and then division. The last method should be adopted whenever the process of division involves a fraction.

5. If 14 lbs. of sugar cost 4s. 1d.; what will 4 lbs. cost? *Ans.* 1s. 2d.

Proof.—4 are two times the seventh of 14. The cost of 14 is 4s. 1d., or 49d.; therefore the cost of 4 will be two times the seventh of 49d.; the seventh of 49d. is 7d., and two times 7d. are 14d., which is 1s. 2d.

Or thus. 14 are 7 times 2, and 4 are two times 2; therefore we must first find the cost of 2.

The cost of 14 lbs. equals 49d.
therefore the cost of 2 lbs. = the seventh of 49d. = 7d.
and the cost of 4 lbs. = 2 times 7d. = 14d., or 1s. 2d.

6. If 4 lbs. of rice cost 10d. ; what will 6 lbs. cost? *Ans.* 1s. 3d.

7. I paid 2s. 1d. for 10 glasses ; how much should I pay for a dozen? *Ans.* 2s. 6d.

And so on.

III.—WHEN THE NUMBERS COMPARED ARE TAKEN AS MULTIPLES OF THREE.

This exercise consists in expressing the numbers as products of three, and thence deriving their ratio in a reduced form.

Six compared with other Numbers.

••• ••• ••• ••• •••
Six are two times three ; nine are three times three ;
six are two times the third of nine.

••• ••• ••• ••• ••• ••• •••
Six are two times three ; fifteen are five times three ;
six are two times the fifth of fifteen.

And so on to a comparison of *six* with *twenty-one, twenty-seven,* &c.

Nine compared with other Numbers.

••• ••• ••• ••• •••
Nine are three times three ; six are two times three ;
nine are three times the half of six.

••• ••• ••• ••• ••• ••• •••
Nine are three times three ; twelve are four times three ;
nine are three times the fourth of twelve.

And so on to a comparison of *nine* with *fifteen, twenty-one,* &c.

In the same manner TWELVE, FIFTEEN, &c., may be compared with other numbers.

Problems.

In giving these problems, the dots or marks, representing the ratios, should be placed on the black board.

1. Twelve are how many times nine? *Ans.* Four times the third.

2. What part of a shilling is nine pence? *Ans.* Three times the fourth, or $\frac{3}{4}$.

3. If 6 mugs cost 10d. ; what will 9 mugs cost? *Ans.* 1s. 3d.

Proof.—9 are three times the half of 6 ; the cost of 6 mugs is 10d. ; therefore the cost of 9 mugs will be three times the half of 10d. ; the half of 10d. is 5d., and three times 5d. are 15d., which is 1s. 3d.

Or thus. Here we must first find the cost of 3 mugs.

The cost of 6 mugs equals 10d.
therefore the cost of 3 mugs = the half of 10d. = 5d. ;
and the cost of 9 mugs = 3 times 5d. = 15d.

4. If 12 yards of cord cost 8d. ; what will 15 yards cost? *Ans.* 10d.

5. If 24 apples cost 16d. ; what will 9 apples cost? *Ans.* 6d.

6. If 5 lbs. of rice can be bought for 15d. ; how many pounds can I get for 9d.? *Ans.* 3 lbs.

Proof.—9 are three times the fifth of 15. Now, 15 pence will buy 5 lbs. ; therefore 9 pence will buy three times the fifth of 5 lbs., or 3 lbs.

Or thus. The cost of 5 lbs. is 15d.; therefore
the cost of 1 lb. will be the fifth of 15d., or 3d.;
that is, 3d. will purchase 1 lb.;
but 9d. are 3 times 3d.; therefore 9d. will buy 3 lbs.

Or thus. Here we shall first find the number of lbs. which 45 pence will purchase. (Why 45? because it is the least common multiple of 15 and 9; thus, 3 times 15 are 45, and 5 times 9 are 45.)

No. lbs. got for 15 pence = 5;
therefore No. lbs. got for 45 pence = 3 times 5 = 15;
and No. lbs. got for 9 pence = the fifth of 15 lbs. = 3 lbs.

Obs. The last method may be explained to the pupils after they have been sufficiently practised in the two first methods.

7. If 7 books can be got for 1s. 9d.; how many can be got for a shilling? *Ans.* 4.

8. If a man receive 22s. for working 6 days; how much should he receive for working 9 days? *Ans.* £1. 13s.

And so on. It is presumed that the teacher will be able to extend these questions as they may be required.

And so on "when the numbers compared are taken as multiples of FOUR, of FIVE, of SIX, &c."

THE WAY TO EMINENCE.

"That which other folks can do,
Why, with patience, may not you?"

LONG ago a little boy was entered at Harrow School. He was put into a class beyond his years, and where all the scholars had the advantage of previous instruction, denied to him. His master chid him for his dulness, and all his then efforts could not raise him from the lowest place on the form. But, nothing daunted, he procured the grammars and other elementary books which his class-fellows had gone through in previous terms. He devoted the hours of play, and not a few of the hours of sleep, to the mastering of these; till, in a few weeks, he gradually began to rise, and it was not long till he shot far ahead of all his companions, and became not only leader of that division, but the pride of Harrow. You may see the statue of that boy, whose career began with this fit of energetic application, in St. Paul's Cathedral; for he lived to be the greatest oriental scholar of modern Europe—it was Sir WILLIAM JONES.

When young scholars see the lofty pinnacle of attainment on which that name is now reposing, they feel as if it had been created there, rather than had travelled thither. No such thing. The most illustrious in the annals of philosophy once knew no more than the most illiterate now do. And how did he arrive at his peerless dignity? *By dint of diligence; by downright painstaking.*—"*Life in Earnest.*"

METHOD OF TEACHING SINGING IN SCHOOLS.

GENERAL PRINCIPLES OF A RATIONAL METHOD.—*Continued.*

VI. SOUNDS should be taught apart from rhythm, before they are taught in connection with it.

In teaching, nothing is so important as the proper subdivision and gradation of the subject: it is the very soul and signification of method. "Classification," says M. Marcel, in his excellent work on teaching language, "is the fundamental law of a rational method; for we should ascertain what things are to be learned, and in what order they are to be learned, before we think of the mode of learning them. Besides, the mind cannot effectively attend to several distinct things at the same time, if these are all equally new; it must be abstractedly engaged on one at a time. The principles of subdivision and gradation, by concentrating the powers of the mind on one thing at a time, are most powerful in instruction, as well as in the affairs of life: a rational method, in conformity with these principles, ought to indicate the successive operations which are necessary at the different stages of the acquisition, so that each may suitably prepare for that which follows, and that all may gradually concur to the end proposed. It ought to prescribe the order in which the different departments of the study may be successively entered upon. Throughout the course, and particularly at the outset, an accumulation of difficulties should be avoided, not to discourage the learner and thus damp his progress."

Of the two great branches of the study of music, the Major mode and the Minor mode, we have endeavoured to show that the teacher should select the former as the department proper to an elementary course of instruction; that he should subdivide the exercises in the major mode into two classes, namely, such as are exclusively in one key and free from chromatic notes, and such as modulate into foreign keys and contain chromatic notes; and that he should teach the former class of exercises before the latter. We now wish to show, that in teaching this, the most simple species of music, he should make a further subdivision and gradation.

Melody, which it is the object of the instruction to teach, consists of two distinct elements. We have, first, certain sounds, then certain conditions of relative time and accent according to which they are to be sung, constituting what is called rhythm. The sounds, therefore, are the main element—the material, so to speak, of the melody; the rhythm is only a modifying influence, regulating their arrangement, and is common to poetry as well as music.

Here, then, are two distinct objects of instruction, each of which should separately engage the attention of the learner; and as we must have the materials themselves before we can arrange them, so we must teach the sounds first, and the rhythm afterwards. The pupils should be practised in singing intervals, irrespectively of rhythm, until such time as they have acquired considerable facility in performing this part of the task of reading music. Then we may proceed to the performance of intervals under the conditions of rhythm, and we shall be able to concentrate the attention of the pupils on this new feature, because it will not be occupied at the same time about the pitch of the notes, or at

any rate only in a very subordinate degree. This course should also be adopted, for the same reasons, in the learning of every separate tune: the sounds should be mastered first, and the rhythm superadded afterwards.

It may appear to the reader to be unnecessary to explain this simple and self-evident matter; but if he will turn to the manuals of the various methods of teaching singing, he will see the necessity. We know only one, namely, that of Messrs. Turle and Taylor, which fully recognizes the principle. Most of them teach intervals and rhythm simultaneously; and one, which in some respects we consider a very good method, namely, that of M. Weber, commits the patent absurdity of beginning with rhythm.

VII. The ear must be trained to the comprehension of the scale according to its harmonic development.

It is a great mistake to commence the teaching of the relations of sounds by making the pupils sing the notes of the scale up and down in their regular succession according to pitch. Most teachers adopt this plan, but few of them fail to experience considerable difficulty in getting their pupils to sing the scale with just intonation. We do not speak of decided cases of defective ear or voice, but of the general average of pupils. The reason of the difficulty will be seen in what we are about to say.

The fundamental principle according to which we derive pleasure from musical sounds, is that of the proportions of the vibrations which form them, which proportions (says Coleridge) are, in fact, laws of the mind, analogous to the laws of arithmetic and geometry.*

The more simple the proportions are, the more pleasure does the mind experience from the sounds which they produce, whether sung together or in succession; and thus upon any sound that we choose to select as a basis, a series of other sounds springs up which are more or less related to it.

The simplest ratio is that of 1 to 2; that is, when for every vibration of the first sound, there are two of the second. This ratio gives us the octave *above* the first sound. The reader is probably aware that a greater number of vibrations produces a higher sound, the time occupied

---

* Dissertation on the Science of Method.—On this subject, the writer of an excellent article on Music in the "Quarterly Review" makes the following remarks:—"The connection between sound and numbers is a fact which at once invests music with the highest dignity. It is like adding to the superstructure of a delicate flower the roots of an oak of the forest. Far from being a frivolous art, meant only for the pastime of the senses in hours of idleness, it would seem to be of that importance to mankind, that we are expressly furnished with a double means of testing its truth. The simple instinct of a correct ear, and the closest calculations of a mathematical head, give the same verdict. Science proves what the ear detects,—the ear ratifies what science asserts,—instinct and demonstration coalesce as they do with no other art;—for, though the same species of identity exists between the rules of perspective and the intuition of a correct eye, yet the science in this instance is neither so profound nor the instinct so acute. The mere fact that music and mathematics should be allied, is a kind of phenomenon. One can hardly believe how Euclid and Jenny Lind should have any common bond of union; but deep in the secret caverns of the mind, the materials from which both are supplied mingle in one common source; and the paths which have conducted a Galileo, a Kepler, and a Herschel, to the profoundest abstractions the human mind is capable of, have started from the sweet portals of musical sound."

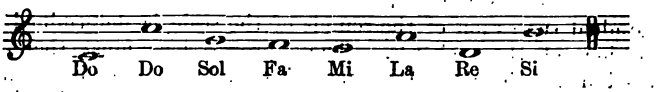
being the same. The octave, being thus closely related to the fundamental sound, appears to the ear only as a repetition of that sound at a different height, and thus forms a close to one series of sounds and a starting-point for another.

The next most simple ratio within these limits is that of 2 to 3; that is, when for every two vibrations of the first sound there are three of the second. This ratio gives us the fifth sound of the scale. The first sound and the octave may be sung together; but, as they appear so nearly alike, they are not regarded as forming harmony. The fifth sound appears as a decidedly different sound, but, from the intimacy of its relation to the first, forms with it the most perfect concord that we have in music. It may be as well to state, for the information of the unmathematical reader, that those ratios are the most simple which can be expressed in the smallest whole numbers.

The next ratio is that of 3 to 4, which gives us the fourth of the scale. This sound is at the same time the fifth below the eighth or octave, as the fifth is the fourth below it.

We have now obtained the four principal notes of the scale. The next ratio, that of 4 to 5, gives us the third sound of the scale. This comes as a subordinate sound between the first and the fifth, and, with them, forms a complete harmonic combination, or a common chord or major triad. This chord, then, is produced by the ratios 4 to 6 and 4 to 5, or 4, 5, 6. The next ratio, 3 to 5, gives us the sixth, which similarly completes a major triad on the fourth. Lastly, by applying the same harmonic ratios to the fifth, we get the second and the seventh sounds of the scale; but these last two sounds are related to the fundamental sound only in a secondary degree, and the ratios which they form with it are consequently less simple, being 8 to 9 for the second, and 8 to 15 for the seventh. We have now all the sounds of the scale. We have seen that they are derived from the fundamental sound or key-note in the following order (Fig. 1):—

FIG. 1.—ORDER IN WHICH SOUNDS OF SCALE ARISE.



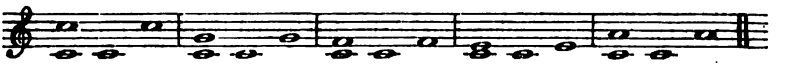
The five sounds immediately succeeding the key-note have all exceedingly simple ratios, and form concords with it; whence they are called the Consonances. The last two sounds have complex ratios, and do not accord with the key-note; whence they are called the Dissonances.

Now, as the pleasure derived from musical sounds arises from the apprehension of their relations, so, the more simple and intelligible the relation, the greater the amount of pleasure derived. But the more readily the ear apprehends the relations, the more easily also will the voice be able to imitate the sounds. Therefore, in order to secure a just intonation of the notes of the scale, which is the first object to be attained in teaching singing, the natural course is to train the ear to the perception of the various relations, in the order of their simplicity. The several sounds must in every case be practised first in their primary relations, and not until afterwards in their secondary and more remote relations.

All the consonances are primarily related to the key-note, and these must be practised first in connection with it. In order the better to

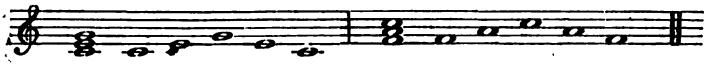
attune the ears of the pupils to the ratios, the sounds should be sung first in combination by two divisions of the class, and afterwards in succession by the whole class, thus (Fig. 2):—

FIG. 2.—THE CONSONANCES IN CONNECTION WITH THE KEY-NOTE.



But, as we have seen, the consonances and the key-note group themselves into two complete harmonic combinations or full chords. These, in their primary form, exhibit three relations. They should now be sung in this form, first as harmony, then as melody; thus (Fig. 3):—

FIG. 3.—TRIADS ON FIRST AND FOURTH SOUNDS.



The Dissonances must be practised next. They are derived from the fifth of the scale, on the model of the two triads which have just been practised, and may therefore be learned at once by singing a triad on the fifth in the same manner; thus (Fig. 4):—

FIG. 4.—TRIAD ON FIFTH SOUND.

These three triads are the materials of the major scale, and the foundation of the whole structure of music. As they are all formed by the same ratios (4, 5, 6), the major triad may be considered as the primary elemental form of music. We do not misapply Longfellow's lines, when we say—

> "These are the three great chords of might,
> And he whose ear is tuned aright,
> Will hear no discord in the three,
> But the most perfect harmony."

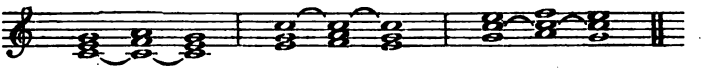
The gradual succession of the sounds of the scale is determined by the progressions of these chords. These progressions must therefore be practised next. The mere singing of one after another in the manner in which that has already been done, is indeed a progression between the two as wholes; but we have now to practise the progression between the individual sounds composing the chords. For this purpose, we must put the chords into such positions, that the sounds between which a passage is to be made, that is, those which are most nearly related in pitch, shall be brought into contiguity. We must therefore first practise the three chords in their three positions, as follows (Fig. 5):—

FIG. 5.—THREE ESSENTIAL CHORDS IN THEIR THREE POSITIONS.

The fundamental principle on which a progression from one chord to another depends is, that the two chords shall have one sound in common. This common tie establishes their relationship; and, to make their relationship the more perceptible to the ear, the sound in question may be held on during the progression. According to this principle, the progressions

to be practised are those between the tonic chord and the sub-dominant and dominant chords respectively. In each case, the progression should start from and return to the fundamental harmony, so that it may leave a complete impression on the ear. The chords should be sung first by the whole class as melody, then as harmony by the class in three divisions. The progression of the chords of the tonic and sub-dominant may be arranged in the three following ways, according to their three positions (Fig. 6) :—

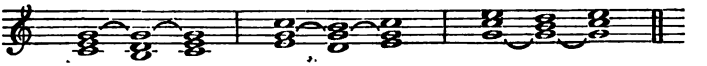
FIG. 6.—PROGRESSION OF TONIC AND SUB-DOMINANT HARMONIES.



This progression will impress on the ear the relations among themselves of the four consonances which come in gradual succession, including the two which form the lower semitone.

The progression of the chords of the tonic and dominant may similarly be arranged in the three following ways (Fig. 7) :—

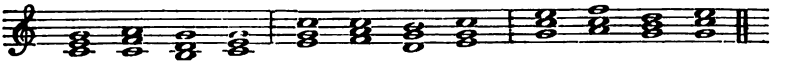
FIG. 7.—PROGRESSION OF TONIC AND DOMINANT HARMONIES.



This progression will impress the respective relations between the first, third, and eighth sounds and the two dissonances, including that between the two notes forming the upper semitone.

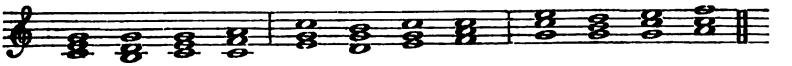
The union of these two progressions in the direct order gives us the harmonic structure of the upper tetrachord of the scale, which, ending on the fundamental harmony, has the most complete effect, and should be practised first (Fig. 8) :—

FIG. 8.—HARMONIC STRUCTURE OF UPPER TETRACHORD.



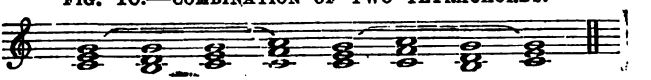
The union of the same progressions in the reverse order produces the harmonic structure of the lower tetrachord (Fig. 9) :—

FIG. 9.—HARMONIC STRUCTURE OF LOWER TETRACHORD.



The pupils will hear that this progression is incomplete, and will immediately perceive the necessity for following it by the other tetrachord, and the beauty of the enlarged, complete, and symmetrical progression which is thus produced. The tetrachords may be combined in each of the three positions of the chords. We need only give them in the first position as an example (Fig. 10) :—

FIG. 10.—COMBINATION OF TWO TETRACHORDS.

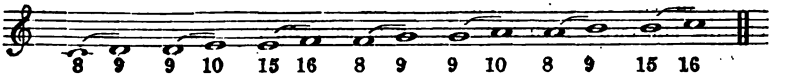


We shall, by this time, have given the pupils a conception of the

scale as a complete harmonic structure, and shall have impressed on their memories the principal relations of the various sounds composing this structure to the key-note, and among themselves. We shall thus have secured, in all probability, a tolerably just intonation of the several sounds; and we may now allow the pupils to sing them separately in the order of their height.

When the sounds of the scale are sung without this previous practice of their primary harmonic relations, they are measured, not from their primes, with which they form simple and definite proportions, but from one another in their order of gradual succession, each from the one which immediately preceded it. The ratios which the sounds form with one another, when taken in this order, are as follows (Fig. 11):—

FIG. 11.—RATIOS OF VIBRATIONS OF SOUNDS OF SCALE.



It will thus be seen that the voice has to execute a series of comparatively complex ratios, and that these ratios differ among one another.

We have, first of all, five large intervals (tones) and two smaller ones (semitones), the former having the more simple ratios, and being therefore the more easy to sing. But, further, the tones are not all alike in size. It will also be observed, that we pass to sounds having a direct and near relation to the key-note, through others having an indirect and remote relation to it. The fact is, that to sing the scale with purity of intonation without hearing the accompanying harmonies, and without having an impression of them fresh in the mind, is a task at which even a great public singer may fail. The difficulty of getting pupils to sing the semitones correctly is notorious among teachers of singing. We believe that correctness in singing these important intervals (for they determine the structure of the scale as melody) can be attained only by the plan which we have recommended, whether adopted sooner or later in the instruction.

The principle which we have here endeavoured to establish is recognized directly by M. Weber in the theoretical part of his method, although he has not carried it out in the practical part. M. Weber makes the following excellent remarks, which will not only enforce but continue our own:—

"Experience teaches us that the ratios which produce the sounds three and four, and seven and eight, are not usually performed with sufficient exactness, and that, in this way, the key-note from which the singers started gets lost. The defective performance of the ratios must become perceptible as early in the scale as the third and fourth sounds, because they ought to have the most agreement with the key-note. So soon as it happens that these sounds are not sung pure, it becomes impossible to sing the fifth pure, as, under these circumstances, the key-note no longer stands firm. But the moment the key-note begins to waver, it also becomes impossible to sing the octave pure: it is derived from the new key-note, which is generally lower than the former one. There is another peculiarity in regard to the fourth: even if the harmonic main points, three and five, are properly sustained, still the fourth will generally fail. This is natural. The fourth forms with the third

the most remote ratio, 15–16, which is the most difficult to hit, if the fourth does not occur as an harmonic main point, which, however, it cannot be simultaneously with the third and fifth; and therefore a pupil who is not acquainted with the different harmonic relations of the sounds most nearly connected with the key-note, will be much more likely to sing the third twice, and then pass on to the fifth, than to give the fourth even an approximation to its proper height. On the other hand, so soon as the fourth is made to occur as an harmonic main point, purity in singing it may be attained with ease."

The principle is recognized indirectly by Dr. Marx in his admirable work, "General Musical Instruction," now brought within the reach of the general English public by the professional zeal and commercial enterprise of Mr. Novello; and by Mr. Curwen, in the first lessons in his "Grammar of Vocal Music," which, in our opinion, are exceedingly good, and show Mr. Curwen to be himself a good elementary teacher.

The truth of the principle has also been *felt* by M. Wilhem, who, although he *begins* the practice of interval with the second, and *ends* with the octave, yet teaches the tonic chord of the scale at the commencement of the whole. The harmonic relations of the scale are not given, in his method, until the middle of the second part, and then they are given incorrectly, the progression being carried *out of the key* in the case of the descending upper tetrachord. The "twaddling thirds" produced by singing the scale in canon, as is done in his exercises on seconds over and over again *ad nauseam*, is certainly not calculated to give a very correct impression of its fundamental harmonic relations. M. Wilhem also teaches the two tetrachords *after* he has taught the whole scale. But, indeed, in this method, everything seems to be done backwards.

J. T.

(*To be continued.*)

AFFECTION OF TEACHER.—"This affectionate earnestness, therefore, it is plain, should be sought for by all who possess it not, and should be made still more influential in the case of those in whom it dwells. The three great rules which have been laid down for ministers are, on this point, equally applicable to teachers; namely, that they should get their subject into their minds—throw themselves into their subject—and pour both themselves and their subject into the bosoms of those whom they address. As has been well said, 'There is most of the heart where there is most of the will; and there is the most of the will where there is most endeavour: and where there is most endeavour, there is generally most success; so that endeavour must prove the truth of our desire, and success will generally prove the sincerity of our endeavour."—*British Messenger.*

THE STUDY OF "LOCAL WORDS."

"The vulgar are, in all ages, provided with words and phrases by their betters, and are more likely to keep them safe and sound than the followers of new fashions." —FORBY.

MR. TRENCH, in his admirable little work, "English, Past and Present," has recognized the value of local words, their use in explaining the sense of words now become obsolete, or in supplying some step in the history of a word otherwise unintelligible.

He has aptly spoken of them as being, not bad English, but old English, and as such, worthy of the attention of every one who desires to have more than a mere acquaintance with the English language.

They are rendered doubly valuable to us by the fact, that they still live on in many of our good old English writers; so that a study of local words would tend to make us far more perfectly acquainted with the writings of Chaucer, Spenser, and Shakespeare, than many of the commentaries written for that purpose.

It seems strange, that while everything that has the stamp of antiquity upon it receives the attention of the learned, provincialisms alone have been overlooked or very slightly treated.

We have our editions of Greek and Latin authors with copiously compiled notes, explanations of difficult words, and the old forms of the respective languages set forth and illustrated. Shall we then treat those who have enriched our language by their large contributions of thoughts and words,—a language that meets "all the requisitions of a solemn and nervous poetry, the earnest appeals of eloquence, and the calm flow of descriptive prose," with less respect?

Surely a word is worthy of our notice when employed by such masters of language as Chaucer, Spenser, Shakespeare, and Milton. For our own part, we have a sort of veneration for the old remains of our English tongue, which certainly do show at times "the decayed intelligence" of the language; and while they occur in our English authors, old though they may be, yet we regard them as still vital, as far as thought is concerned,—or, otherwise, what advantage can we hope to obtain by a study of them?

We therefore attach much importance to provincialisms—these old forms and usages, "more faithful than others to the traditions of the language," because we believe that by them we can better explain and exemplify the meaning, history, and forms of words (their name is legion), that occur in *old* English authors—nay, of some that we should hardly dare *to call old.* This is certainly one very valuable use of local words, and one good reason why we should study them; but besides this, they have a still more practical bearing; for they serve to explain and account for some forms that occur in the language, which otherwise appear to be far from normal, and they likewise supply us with the etymon of words which a false spelling has disguised.

A few examples will better set forth our views upon the subject.

We cannot, however, close these remarks without calling upon *Teachers,* whose facilities for studying local words are great, to lend us their aid in this study, assuring them they will not only be conferring a boon upon those who have the subject at heart, but also at the same

time furnishing themselves with no mean amount of knowledge of the history of our language in so doing.

Milton furnishes us with a few old forms which are now merely local:—

(1.) "All fish from sea or shore,
Freshet or purling brook, of shell or fin."

Mr. Trench has noticed the word 'freshet' as having "never been out of use in America."

'Freshet,' however, is the diminutive formed from the word '*fresh*,' still in use in the north of England for a river swollen with rain.

The word has suffered some degradation of late, being applied to a person who has partaken too freely of intoxicating drink, and is then said to be '*fresh*.'

(2.) ——— "the parching air
Burns *frore*, and cold performs the effect of fire."
Paradise Lost, book ii.

'*Frore*' is an East-Anglian word for frozen, and in Suffolk 'frawn,' as well as 'frore,' is used.

(3.) "In his own temple, on the *grunsel* edge,
When he fell flat and shamed his worshippers."
Paradise Lost, book i. p. 460.

'*Grunsell*' is a north of England word for 'threshold.' The full form is groúnd-sill, accented on the first syllable; so that the provincial form clearly indicates the correct accentuation of such compounds as hoúsewife, goódman, &c.

(4.) "The grassy clods now *calved*."—*Paradise Lost*, b. vii. p. 463.

'*Calve*,' signifies to 'fall in,' 'to separate;' applied to earth falling in, &c. '*Cave*' (north of England), '*keeve*' (Suffolk).

"There where the mouldered earth had *caved* the bank."
Fairie Queen, v. 33.

(5.) ——— "while I
In yonder *spring* of roses, intermixed
With myrtle, find what to redress till noon."

'*Spring*' is an East-Anglian word for a small wood or grove, a word that hardly deserves to die out of the language.

We should hardly expect to find Fuller using a provincialism: under the disguised form of '*edge*,' he uses the Yorkshire word '*egg*,' to urge on, stimulate, &c.:—

"O that this word *edge* the endeavours of our generation to succeed to the dead places of worthy men."

Shakespeare, the European poet, as he is justly called by the Germans, abounds in provincialisms:—

(1.) "When law can do no right,
Let it be lawful that law *bar* no wrong."—*King John*.

'*Bar*' (north of England), to forbid, exclude.

(2.) "And sometimes make the drink to bear no *barm*."
Midsummer Night's Dream.

'*Barm*,' a word used in almost every part of England and Wales for yeast. '*Bahm*,' in Suffolk.

Lillie, in his "Mother Bombie," says—

"It behoveth my wits to work like barme, alias yeast, alias sizing, alias rising, alias God's good."

"Ryal of foom or berme: spuma"—*Lexicon, English and Latin*, 1440.

Ray says, sizzing was used in Sussex; newing, in Essex; and gosgwood, beersgood, or burgad, in Suffolk.

(3.) "With this we charged again; but out, alas!
We *bodged* again, as I have seen a man
With bootless labour swim against the tide."—*King Henry VI.*

'*Bodge*' (Suffolk), 'botch' (Yorkshire), to do a thing unskilfully, bungling.

Bodge is the root of our word '*bodkin*.' At one time there were the *botchers*, who bore the same relation to the tailors as cobblers now do to the shoemakers.

(4.) "*Undinged* target."—*Shakespeare.*

'*Dinge*' (north of England), to cruise, strike; hence '*dint*,' the effect of being dinged. '*Dynt*' (Anglo-Saxon), struck.

(5.) "Away! and *glister* like the god of war
When he intendeth to become the field."—*King John.*

'*Glister*' (Suffolk), to shine, glisten.

"It all above besprinkled was throughout
With golden aiguillets that *glistered* bright."—*Spenser.*

(6.) "Go your *gate*."—*Shakespeare.*

'*Gate*,' a word used in the north of England for 'way;' the same as 'gait.' Spenser says—

"Go but a lowly *gate*
Among the meaner sort."—*Shepherd's Calendar.*

(7.) "Into as many *gobbets* will I cut it
As wild Medea young Absyrtus did."—*King John.*

——— "like ambitious Sylla, overgorged
With *gobbets* of thy mother's bleeding heart."

'*Gobbet*' is the diminutive formed from 'gob,' a Suffolk word, signifying gross bits of fat.

Byron uses the East-Anglian word '*bale*,' bondage, bound, with very good effect:—

"The damned cries of souls in hopeless *bale*."

We shall now give a few illustrations of English philology, with aid of some local words:—

(1.) The negative prefix '*gain*,' in '*gainsay*,' and in the old words '*gainstrive*,' '*gainstand*,' signifies '*again-st*;' the full form is '*again*,' still in use in Yorkshire, and pronounced '*ageean*.' Suffolk folk say '*aginn*.'

Chaucer says—

"Al be it that it is again his kind."

In the Rolls of 3 Henry VI. we read—

"Againe kyndely reson."

(2.) We often speak of a ship being '*bound*' for a certain port, but we seldom consider whether the word is what it appears to be.

The *d* has no place, or rather ought to have none, in the etymon of the word; the error seems to have arisen from the seeming connection of the word with *bound*, the derivative of *to bind*.

The word in its correct form occurs in the north of England, '*boun*' there signifying *ready*. 'Very bain,' in some parts of the north, signifies very officious.

Chaucer says—

"For sorrow his harte to brast (burst) was *boun*."

(3.) The word '*bonfire*' hardly suggests *a fire made with brands*, but the Somersetshire word '*bran-vier*' at once proclaims the etymology and meaning.

(4.) So '*bye*' in '*good bye*,' when pronounced by the Somersetshire folk '*bwye*,' tells us of its rise from '*be with ye*.'

(5.) The old English word *mainy* took its leave of us in the well-known line of Dryden:—

"The *many* rend the skies with loud applause."

'Many,' in this line, means the king's retinue, and is connected with the provincial 'menya,' a family. (See Appendix to Hunter's Hallamshire Words.)

(6.) In 1 Samuel, xxviii. 10, we read these words:—

"Whither have ye made a *road* to-day?"

We should far better understand the sense of the passage if '*inroad*' were substituted for '*road*' in this verse.

In its etymological connections, it is the same as '*road*' and '*rode*,' but its signification is only preserved in the Border word '*raid*' or '*rode*,' an incursion, invasion, marauding expedition.

Spenser uses the word—

"In the wild desarts, where she now abode,
There dwelt a salvage nation, which did live
Of stealth and spoil, and making nightly *road*
Into their neighbours' borders," &c. &c.—*Fairie Queen*, vi. 8, 35.

(7.) Mr. Trench has noticed the word '*silly*,' and its connection with the German word '*selig*,' happy, blessed. Its change of meaning may be thus illustrated:—

(*a*.) Happy, blessed.
(*a b*.) Happy, blessed, comfortable, tender, gentle, delicate, &c.
(*b*.) Gentle, delicate (in contradistinction to man's robust constitution).

The north of England word '*seely*' has this last signification of *weak in body*.

(*a*.) "To have some *seely* home is my desire,
Still lothe to warm me by another's fire."—*Daniel*.

(*a b*.) "O sister, O my loving spouse, O *seelie* woman, left
As onlie remnant of thy sex that water hath bereft."
Golding's Ovid.

(*b.*) "For of this sort are they which creep into houses and lead captive *silly* women," &c.—2 *Timothy*, iii. 6.

'*Silly*' is here used to translate γυναικρια.

(8.) We still have the word '*unravel*,' but to '*ravel*' is no longer to be heard except in the north of England, where a skein of thread is said to be '*ravelled*' when the threads are not in order.

(9.) '*Coast*' has no longer anything of *rib* (costa) in it now. In Suffolk, however, *ribs* of cooked meat are still designated *coasts*; in Wales, *coast* is a neck of mutton, and in Scotland, *cost* or *coist* is the *side* in the human body. Ben Jonson has, "betwixt the *costs* of a ship." In our English version *coasts* signifies *borders*.

(10.) '*Manner*,' as employed in the words, 'what *manner* of man is this?' is still used in the north.

(11.) "Lest they should tell *on* us."—1 *Samuel*, xxvii. 11.

'*On*,' still extensively used for 'of' or 'concerning.'

"Heard on."—*Sir Henry Saville.*

(12.) "Fetch a *compass* behind them."—2 *Samuel*, v. 23.

"And from thence we fetched a *compass*."—*Acts*, xxviii. 13.

'*Compass*,' a word used in Norfolk and Suffolk for *outline*, as of carpenter's work, of laying out grounds, &c. with a sweep approaching to a circular form.

(13.) '*Cousin*' at one time signified, as it still does in Norfolk and Suffolk, either 'nephew' or 'niece.'

Pandarus calls Cressida his *cousin*, who was, however, his niece.

(14.) "My *condition* is not smooth," says Shakespeare, in Henry V., when he means that his temper 'is not smooth.' '*Condition*' in this sense is East-Anglian. (See Forby's East-Anglian Words.)

(15.) Sometimes an old custom is made known to us by the preservation of a word. In Suffolk the alphabet is called '*criss-cross-row*,' and in Somerset '*criss-cross-lain*;' for in former times *Christ's rod* or *cross* was placed before the alphabet in the old horn-books, and thus gave name to the sum of the letters. Shakespeare, in King Richard III., book i., says—

"And from the *cross-row* pluck the letter G."

To multiply examples any further to show the importance of studying "Local Words" is needless. What we want are good collections of "local words" now in use; and these *many* of the readers of the "English Journal of Education," we doubt not, are able to furnish. R. M.

THE CULTIVATION OF THE MIND.—"He can no more be said to have his mind cultivated who has it filled with what is untrue, ungenerous, or impure, than can a field or a garden be called cultivated that is occupied by weeds, or crowded with plants which are noxious. The individual who wishes to cultivate his mind must carefully guard it against every thought, every image, every influence, that would harm it. It is a fact, as melancholy as it is notorious, that this is the tendency of a large mass of the popular literature of the day, because of the mere excitement which it gives. Multitudes, especially among the young, spend their spare time in the perusal of books on which they should tremble to look—books which no consideration should tempt them to read."—*Able Lecture on the "Pleasures of Mental Culture," by the Rev. Dr. Lillie.*

THE GOVERNMENT OF PUPIL-TEACHERS.

A Paper Read before the United Association of Schoolmasters, by Mr. F. R. Crampton, Master of St. John's National School, St. John's Wood.

I BELIEVE I have chosen a subject of practical utility,—for the "Government of Pupil-Teachers" is neither so easy, nor of so trifling importance, as to render any hints upon the matter superfluous. It is not my purpose to enter particularly into the Government regulations regarding their instruction and discipline, but to draw your attention to the means of forming their character, with the view of rendering them not only good schoolmasters, but honest men; not merely fit for their intended profession, but fit for the exalted privilege of possessing the breath of God for those ends to which they were created. Consider for one moment of what vital importance it is that no means should be left unemployed to make these youths champions of truth and integrity. Who can place a limit where their influence shall stop? As each one goes forth to be the faithful teacher, or the mercenary hireling; the humble, hopeful Christian, or the upstart pedant, many have to be benefited or injured by them; the welfare of hundreds depends upon the character, perhaps, of one of the lads of whom we hope the *best* at all times, but are often content with leaving to future years' experience what should be striven at now. Ought we not to hold our trust in fear and trembling, when we consider how many countless graces and manly aspirations may arise from a word spoken in due season; or what a pernicious instrument our negligence or insincerity may send forth to influence generations yet unborn? The oft-repeated maxim of wisdom coming with experience, is in this not only fallacious, but destructive of much usefulness. Many have to regret that they passed their youth in shameful indolence; that the world was to them full of good fairies, who waited to do their bidding. The tender remembrance of a mother's counsel or a father's sage advice will, perhaps, come to their remembrance in moments of terrible anguish of soul, when they are borne down by the torrent they are unable to stem. Oh! how much there is to suffer from the inexcusable neglect of making a proper use of those years which precede the responsibility and self-reliance that must come in turn to all.

Much difference of opinion has arisen as to the efficacy of the pupil-teacher system; but I must urge in its praise, that it came upon us at a time when it was needed; it was carried on with great indulgence and sympathy at *first* on the part of the Government, and it has raised the standard of instruction materially. There was always a great idea of *numbers* in a school. Every clergyman appeared satisfied that all was right if the school was crowded; so there was a master with only human strength and ability engaged to *educate* two hundred, assisted (does it deserve the name?) by a few little monitors, who used to play at "school" at one time of the day, and at "soldiers" another. Each was alike a burlesque. Now, however, a twofold object is answered,—useful assistants are given to the master, and useful schoolmasters are prepared for the country. The Government regulations contain, moreover, such checks and requirements as should provide for the proper instruction and discipline of each youth, and insure his usefulness during his apprenticeship. While giving a cordial approval to this part generally of

the Government scheme, I must at once express my conviction that the payment of the gratuity to the schoolmaster being stopped upon every failure of an apprentice, is unsound. That it should depend upon the examination either of the boy or the school being satisfactory, is fair and just; but that a man should suffer because a boy has done wrong in the face of all remonstrance, and he has been faithful enough to say so, is contrary to my notions of right. Many may have connived at some immorality because five pounds were involved: beset with numerous difficulties,—delicate health, a large family, dearness of provisions, relying, perhaps, for a roof to cover him and his dear little ones, upon this very *five pounds*, he makes a compromise with his conscience, and, instead of acting firmly, reproves kindly, for the boy may be somewhat *mulish;* and thus concession after concession is made to the end of the apprenticeship. Let us not follow out too closely the probable results of such a course, but hope that the same merciful eye which saw the cause may have in store future restraints to prevent the influence of a tyrannical spirit.

I must now speak of the selection of an apprentice. This generally depends, as indeed it ought to do, upon the master; too frequently, however, intellectual acquirements, or the want of a more suitable candidate, determines his choice. Many circumstances should be taken into consideration before the selection is made, the absence of any of which will cause future mortification and disappointment:—The respectability of the character of the parents; their influence over the boy,—whether he is well looked after by them in his hours of leisure; how far they are likely to control and direct him in succeeding years; and other questions of importance affecting them.

One chief element in the boy should be truthfulness: mischief can be managed,—slyness or deception is a loathsome reptile, that every schoolmaster detests; he should be of a good temper, able to bear reproof, active in his habits, and, above all other earthly gifts, he should be healthy: to make a sickly boy a schoolmaster is a refinement of cruelty that we should certainly avoid.

The first year of apprenticeship is one of trial for both teacher and pupil; the former should then be extremely careful that no laxity or carelessness on his part opens the way for future irregularity on the part of the pupil. To insure punctuality, it will be necessary to consider that one minute after time is a serious offence. The habit of being at the post at the very moment is of too great importance not to insist upon it, in spite of all difficulties. In this, as in all other matters of similar importance, one great feature must be apparent,—the pupil-teacher must see in his master a determination to carry out what he proposes; to know no excuse, no obstacle, no temptation to the contrary: a plan is formed, and a legion of adverse circumstances is not to deter. Of this we may be certain, that anything like wavering is subversive of all control. There must be, of course, an adherence to the requirements of the Committee of Council as to the intellectual attainments of pupil-teachers; but it is essential to success that, before all things, the *heart* of the boy should be gained; this is indeed *vital*, for all subjects of instruction may be made alluring, all advice tempered with judgment and candour, if a boy goes on with the good understanding that everything reasonable is done for his interest, and

that he means to do his best. I do not think, nor have I found, this to be so difficult; how many kind feelings are engendered by a kindly interest being taken in a boy's health,—his pleasures, his parents,—a timely joke, a friendly shake of the hand, a participation in his amusements; these, with many other things, weave a bond of interest between both parties that is not easily broken, and assure the boy of the earnestness and sincerity that begirt his path. It is not to be expected that when a boy leaves his ordinary schoolboy position, and emerges into his five important years of trial, he will cease to have the fun and hilarity of a boy; he is then, perhaps, just getting into that unenviable stage of his existence which we may call his puppyism. This begins earlier with a sharp, clever boy than with one more moderate in his attainments; and all have witnessed the important strut, the everlasting variety of the necktie, each time the dimensions becoming more ridiculous; but all this is to be expected, and shows that some regard is possessed for the opinion of others. A little wholesome ridicule will rectify the silly notions regarding dress, or other subjects of the same nature; but it will of course be given with good humour, and not in such a way as to cause unnecessary humiliation.

It is not essential that a boy should perceive the reason for each demand upon his patience or obedience, but that he should be brought to that state in which he will place implicit reliance upon his master, and render such cheerful compliance with his wishes as will prevent unpleasant results. I believe that it is quite possible for a boy to look upon his apprenticeship as a state of discipline, and that he can habituate himself to many duties from which he would have shrunk if he had had foresight at first to perceive how onerous they were.

His studies should be judiciously given, with a view of forming habits of thought and reasoning, as well as a capability of teaching those subjects required in his future profession. It should be borne in mind, that he is to be a useful member of society, and not a self-sufficient pedant. Upon this point, I cannot help quoting the admirable remark of Channing —"But the ground of a man's culture lies in his nature, not in his calling. His powers are to be unfolded on account of their inherent dignity, not their outward direction. He is to be educated because he is a *man*, not because he is to make shoes, nails, or pins. A trade is plainly not the great end of his being, for his mind cannot be shut in it; his force of thought cannot be exhausted on it. How often does the pious heart of woman mingle the greatest of all thoughts—that of God —with household drudgery. A mind in which are sown the seeds of wisdom, disinterestedness, firmness of purpose, and piety, is worth more than all the outward material interests of a world. You tell me that a liberal culture is only needed for men who are to fill high stations; I answer that *Man* is a greater name than President or King."

In the long hour and a half which we are compelled to give each day, and the pecuniary reward for which (if *that alone* were our reward) is contemptible enough, time will be found to open to the minds of these youths such subjects of study as will help to give them zeal in their situation, and upright motives in their conduct generally. The lives of eminent men—a subject always interesting to the young—may show them how some have risen to greatness in spite of poverty, persecution, and other hardships; how the jewel sought so wearily by many was a suffi-

cient reward to them when discovered; how others were set as beacons to guide the laggard, the thoughtless, or the desponding; how, impressed with the ennobling determination to benefit their fellow-men, some have walked the world to bless it, and to leave behind them the footprints of angels.

Let us show them the great Samuel Johnson. In an obscure corner or hole in London, plodding manfully in a half-starved condition for many years; the champion of the weak; the strong-armed lion, under whom the oppressed so often took shelter; the meek Christian, who would never allow the least irreverence to be shown to sacred things; superior to servility or adulation; working his way to a renown which few of his compeers possessed; and leaving a memory revered by all. How a Howard loved all men more than he loved himself; and how in gentleness he went, single-handed, to that merciful work which renders his name dear to us!

Then, again, music is a powerful auxiliary, which will amply repay for all the time spent on it. I do not mean a meagre acquaintance with the nomenclature peculiar to each system of teaching vocal music, but an appreciation of the art, and an enjoyment in its pursuit, which can only be obtained by long practice and familiarity with good compositions. I have said that we ought to take an interest in the recreation of our pupil-teachers, and I am sure that there can be no recreation more wholesome than this. I have done much by teaching all my pupil-teachers to play the violin, and many an hour have they spent over it which would otherwise have been sauntered away in amusements frivolous and unprofitable. It is my usual salute of a morning to hear, not the strain of chanticleer, but "Logie of Buchan," "Sally in our Alley," or some such well-known air; and it is pleasing to know, that the same solace which has beguiled many a weary hour of mine, is in store for them. When the nerves have been strained to their utmost endurance, the head aching, and the limbs weary, this has been a pure heavenly enjoyment, which has afforded relief at all times. Moreover, it is a powerful instrument of intellectual culture; a refiner of the taste; a quickener of the imagination; the handmaid of religion. Mathematics will give them habits of precision and reasoning; and in teaching Euclid, I would not be satisfied with the simple enunciation of a problem, but interpose the question *why* such and such a consequence is arrived at continually. Every step should be made a matter of reasoning, and no mere rules will be of any service in improving the reasoning powers. In all matters connected with religion, there must be the mere head-knowledge, and the reverential feeling totally distinct from this. In reading the Bible, or studying any portion of its precepts, it must be regarded as entering into a sanctuary which will not bear the intrusion of other thoughts; lightness or carelessness of demeanour should be resolutely banished. The faithful teacher will lead his young disciples to view the Almighty as a kind father, ready to guide their feeble steps through the world. More profitable will it be to teach them plain homely truths, which we learned on our mother's knee, and which we have found to be our solace in hours of severe trial, than a host of dogmas invented by men, and kept up by factious spirits. It is not necessary that they should have a familiar acquaintance with every Anthony Fire-the-Fagot, nor will it much improve their character to be

well up in red-letter matter, missiles, relics, heresies, and the lives of the various anathematizers, whose zeal in promulgating their opinions has not been very often mingled with the gentleness of Christianity. They should undoubtedly become familiar with the history of our Church, and this may be made most interesting to them; but I would insist chiefly upon the simple teaching of the Bible, and endeavour that they should see God as "the friend that sticketh closer than a brother." The Scriptures will then become "a lamp unto their feet and a light unto their path." Indeed, as the writer of an excellent commentary upon the Acts of the Apostles says, "there is considerable danger lest even the study of Holy Scripture should degenerate into a mere exercise of the intellect or memory." Among other matters, let them have an opportunity of cultivating their taste in drawing, not depending upon courses of lines and segments of circles, but, in addition to their necessary acquaintance with principles, let them indulge their taste in any sketches, humorous or otherwise. They are all fond of "Punch," and it is surprising how accurately they will copy these sketches with pen and ink.

With regard to home lessons, I think two hours a day may be devoted to the subjects necessary for their study. These lessons should be very carefully reviewed, and it is a good plan to keep a record of their progress in each matter: the attention of the teacher must be drawn to their habits of carefulness and neatness, and it will be some trouble at first to get a boy at all times to put his work down on paper in such a way as if he were doing it for an examination. To be at one time careless, is to be depended upon at no other time for carefulness.

It is not my purpose to mention each subject which forms a matter of study to pupil-teachers,—*these*, I have mentioned as helping more especially to lead their minds into healthy habits of thought and action. Doubtless there are many others of kindred nature; as, good poetry, chemistry, and other branches of science: these are all helps by which knowledge may be made alluring, and truths established which will not easily be removed. Certain stated times must be taken up to review carefully and candidly the school-work; and never should we get into the habit of complaining of their teaching or conduct before the boys. A few words quietly spoken when alone, they will remember and act upon; but all that may be said amid the noise and worry of the school passes away as vapour. The habit of reproving them before the children will moreover tend to reduce them to mere schoolboys, and lessen their authority, to uphold which is of so much importance. There is a very wrong notion with many, that if a boy devotes his time to the school, and is present when required to receive his private instruction, no further demand can or ought to be made upon him. Each boy must rather regard himself as he really is, an apprentice at the call and bidding of his master. There must be no fancies, either of his or his parents. He is not paid like an errand-boy for so much work done, for his pay is inadequate when measured by such standard; but he is assisted in a pecuniary way to fit himself for an important situation in life. Of course the annual stipend does materially assist him, but I must repeat that it cannot be regarded as an adequate payment for labour. The great advantages of careful instruction of an extended kind,—the elevation of the character, and future respectability, are the real advantages a pupil-teacher possesses.

Let us not deceive them as to present or future prospects. While the profession of a schoolmaster is justly represented to them as one of the noblest they can be engaged in, let them be cautioned against the vanity and discontent so common amongst present schoolmasters—querulously murmuring about their dignity and their respectability, complaining of the want of respect shown them, and spluttering great sayings and hard speeches in small periodicals. Let them be shown that true worth rises securely in the estimation of all, and that a quiet perseverance in the path of duty will constitute the true dignity of every man: that "in quietness and confidence shall be their strength." Let the trials incident to the profession be placed fairly before them, not in a spirit of despondence, but as difficulties to be encountered with courage and cheerfulness. I might pursue this subject further, for it seems inexhaustible. The remarks I have made have been suggested by experience, and are only meant to be hints: they lay no claim to originality or novelty, and may demand perhaps no further attention than respect for the spirit by which, it is due to myself to say, they are prompted. Particular circumstances guide particular cases; let us all be *faithful*, earnest, and depend upon God's help, and our difficulties will vanish in proportion to our trust and perseverance.

THE USE OF ANECDOTES IN SCHOOL.—"The value to the teacher, of a fund of anecdotes and illustrations, upon which he can draw whenever occasion requires, can hardly be overrated. With mature minds,—even with those best able to appreciate reasoning,—comparisons, illustrations, or allusions, are often more forcible than arguments."—*American Journal of Education.*

THE VOLUNTARY SYSTEM.

NO exotic is more tender than a political system: while in its native soil, and under its peculiar heaven, it bears fruit to perfection, and excites the envy or admiration of less-fortunate climates; transplanted, the fountains of its fruitfulness may be dried, or, like the upas, its shadow may blight and wither. The abstract ideas of freedom, the theoretic principles of right and justice, are, in the main, similar on the banks of the Neva and the banks of the Thames; yet a system framed solely with reference to those principles might be a blessing in the latter case, but would certainly prove a curse in the first. The fact is, that political systems, however their theoretical perfection may attract the admiration of the few, commend themselves to the many, not as they fall in with their opinions, but as they harmonize with their prejudices, adapt themselves to their idiosyncrasies, and are so moulded to the circumstances of ordinary life, as to afford scope for the exercise of peculiar virtues, and control without jarring with that which the observer may reprobate as national vice. Hence the diversity of means by which different governments aim at, and attain, the same object; some by a direct and single movement, some by a complex process, which will appear absurd if it be not considered that systems of government owe, rather than give, their form to the general habits of the governed; that they are adaptations to necessities or expedients induced by circumstances. It is easy to legislate for Utopia, because we may shape our subjects to our system; but a practical system must stand, not upon its logical consistency or ideal beauty, but upon its fitness to circumstances which we can modify, but not destroy. Some of the dozen constitutions which the bureau of Abbé Sièyes boasted, were doubtless worthy of a mathematician, and some of the governments which his country has endured were, perhaps, intrinsically more excellent than the despotism they succeeded; but the history of their failure is simply the history of a people falling from systems foreign to their habits and unsuited to their temper. The institutions of Lycurgus subsisted for five hundred years, because he built with materials which the prejudices of his nation had consecrated; and that constitution which *we* are taught to believe will outlast all human institutions, owes nothing to theory, nothing to logics, but everything to prejudices, habits, circumstances, and experience.

To devise a National System of Education is the problem of the day, —the ambition of modern statesmen. Every parliamentary session brings its educational measure as regularly as its chancellor's budget. The school must become emphatically an "Institution;" the instruction of the people, reduced to a system, must remove that ugly aspect of ignorance which mocks the collective wisdom of the land. The whole state of popular education is declared to be a national disgrace, and the efforts already made to advance it are pronounced a failure. Without admitting these premises, we are not disposed to deny the conclusion, that it is the mission of the men of this generation to place England, in respect to popular intelligence, in the same relative position to other nations, as that which she holds in political weight and material strength. It is the sense of this inferiority which is most galling to

British vanity. It will weigh with complacency manufacturing skill against the acknowledged artistic taste of a rival people, and contrast the conveniences of a colossal trading capital with their architectural splendours; but there is no mollifying balm to this inferiority of ignorance: wealth, freedom, mechanical progress, throw out the dark blot, as objects are defined upon the brightness of evening sky. The national mind, therefore, addresses itself to the question with its characteristic earnestness: it contrasts the perfect mechanism and success of continental systems, with our own rude bundle of expedients and assumed failure, and challenges the skill of the statesman to rival or imitate their perfection. To lift the intelligence of the people to the German standard, our system must assimilate to the German model. But though we may look to continental systems for incentives to emulation, it may not be safe to tread the track by which they have reached success. To be a national system, ours must be shaped, not to a model, but fashioned in a mould of national habits and party prejudices, which we may lament, but not ignore: it must enlist benevolence; conciliate selfishness; do no violence to convictions of duty already formed, to zeal already engaged, to suspicions which will always exist; and yield to circumstances, of which arbitrary governments make no account, but which are the conditions upon which the existence of our own depends.

This is a statement of truisms; but the statement is not unnecessary. The last abortive attempt at educational legislation was made by a veteran statesman, who seems to have forgotten them. In the interval—may it be long!—which intervenes between his failure and the next novelty, it will be well to consider whether the system which has grown up amongst us be not exactly the system we require; and whether the educational necessities of the country will not be better served by its development than by innovation. That it has some defects we admit,—these are incident to the character of most of our institutions, being commonly the results of a compromise between contending principles; but its great recommendation appears to be the ease with which State influence is made to co-operate with those prejudices, which, if not with, would be against it; so that while it receives much of the regularity and precision of an organized system, it loses nothing of the generous and healthy vigour of Christian benevolence.

A retrospect of a few years will present the educational means of the country before they were united by the present measure of State control; and a small experience of popular habits and national temper will approve the wisdom which attempted no stronger link.

First is a large mass of funded charity, the bequests of ancient philanthropy. Few parishes are without some monument of the piety of past generations, making itself known by the desire to dispense that knowledge, the value, or perhaps the need of which, had been taught by experience; some "charitable trust" long misapplied; some "grammar-school" or "foundation" long misgoverned; some bequest of eccentric benevolence which it would be simple fidelity to the donor to apply more wisely; some fund, which, in the hand of the trader, would have increased fivefold, hidden in the earth by indifferent trustees. The assistance which national education might legally demand or honestly receive from this source is still withheld by local interests, vested rights, or an abuse of circumstances which has an aspect of dishonesty.

Then ready to our hand is the treasury of a large-hearted contemporary charity. Some deduction from the degree of contempt with which the assumed failure of the voluntary system is sometimes regarded, might be made on an estimate of the efforts which sustained it. If we cannot congratulate ourselves on the result, we may point with national pride to the benevolence which has spent itself on the futile effort. But it is not in its resulting subscription-lists that the value of this auxiliary to a national system is seen. The mere material wealth is as nothing to the moral energy which this generous source supplies. The contributed guinea is increased in value a hundred-fold, from its being the symbol of the sympathy which engages the donor to the cause which he assists; and this is no little gain. A system of police will work well supported by murmuring rate-payers; a town may be well paved and lighted by citizens bent to a man upon escaping from the payment of their dues; and although recent events would negative the supposition, an hospital may be effectively conducted upon the coldest routine, and by the most mercenary of officials. But the task to which the national mind is impelled by pure benevolence cannot be performed without the aid of benevolence. Popular education is a work which bears some resemblance to missionary enterprise: its commencement was due, not to the pressure of a political necessity, but to Christian sympathy for men who sat in darkness. The instruction contended for is the lessons of the Gospel. The public or the senate would hear with apathy, or with the interest excited by a financial scheme, the advocate for education, did education imply mere secular knowledge; but it is because education to the vast majority of minds implies the communication of the loftiest truth, the formation of a religious, rather than of a scientific habit, that every scheme for its dissemination is examined with interest and debated with zeal. A scheme for evangelizing an Indian province, for political reasons, and by a government agency, would bear some resemblance to the work of education deprived of the sympathies of benevolent and Christian men. The School can no more dispense with the spirit of active benevolence, to which it owes its existence, than can the Church with that love of souls which it receives from its Master. It is easy to see how deep a gulf the imposition of an education-rate, the prominent feature in the Russell and Pakington schemes, would cleave between this spirit and the school. When the tax-gatherer's face, not hostile, is turned from the door, the payer conceives his duty to be discharged. Henceforth he has no thought of the necessities of the state, the majesty of the empire, and the value of social order, subjects with which he might have lightened the burden of payment; his thought is of watchfulness against waste, and whether, on the whole, his priceless civil privileges might not be enjoyed with an inferior outlay. Men do not pay a poor's-rate in the same spirit that they give alms,—a question is never raised whether an act of voluntary benevolence might not be done at half the price; but when a man is compelled to a work not otherwise distasteful, he claims to do it with the least possible exertion. Therefore the rate-supported school would become an object of interest to the benevolent by nature, or the benevolent from fashion, no greater than the "Union;" and the desire for sound popular education would degenerate into a desire for the cheapest system and the lightest rate. Benevolence is a jealous spirit; it desires

a neglected and exclusive field for labour: what the State or the Parish professes to do, it leaves for that which selfishness or necessity has not undertaken; and thus the state-supported school would fall into a cold routine of secular knowledge; none but official religion could be admitted within its walls, and the scholar would be left to the moral influence of historical facts and mathematical principles.

Auxiliary to the same work is the rivalry of religious denominations. How much soever popular education is indebted to the spirit of charity, it owes more to sectarian emulation and sectarian jealousy. The purity of the religious, and therefore of the moral atmosphere, is preserved like that of the physical atmosphere, by the conflict of unprevailing currents; and as the natural world would stagnate in the blight of a perpetual calm, so would the world of men, but for the movement of contending creeds. No small portion of every-day religion consists in antagonism to a rival church. But society does not lose by that which the Christian would lament. There is that in even the partisan's zeal for religion which insures the blessings contingent upon its propagation; it may even be doubted whether civil liberty and social progress owe more to the unanimity than to the strife of the Christian world. Norway amongst Protestant, and Spain amongst the nations of the Roman communion, are at once the most ignorant and most united of the civilized people of Europe. Thus with Britain: the machinery of education would want much of its efficiency in many a district, had not the conservative principle of the Establishment and the aggressive principles of the sectarian generated it of their mutual animosity. The old parochial schools, which, during a drowsy existence of a century, made their mission to centre in the parish boy's badge and leather breeches, might have slumbered still, but for the rude jostling of the "Lancastrian" school. The schools of the City, long possessed of the monopoly of education, and jealously guarded against the innovations that make sweeping work beyond its walls, are, with one or two exceptions, the least efficient in the metropolitan district. But the good consequent upon this rivalry depends upon its being carried on upon no common ground. Confine it to a board-room or vestry, and it would degenerate into a parochial squabble, dividing the house against itself, deranging the steady operations of the school, furnishing newspapers with stinging paragraphs, and dead walls with "posters." Some such result may be anticipated, when the payment of an education-rate shall qualify every parochial agitator to make the schoolroom his forum, and communicate the wisdom to settle the faith of the district.

Again, we may render subservient, or inimical to our aim, the sturdy English feeling of independence. Next to the hand of power, the English mind can submit least patiently to the hand of charity. It is no ignoble pride that dislikes equally assistance and control in the affairs of social and domestic life; it is a salutary prejudice that connects the receipt of alms with a sense of shame, and makes pauperism the next worse stigma to that of crime. Gratuitous instruction is, from such prejudice as this, not popular. The desire for knowledge is accompanied with the desire to purchase it. The ancient parochial school, though it may have kept pace with its "national" neighbours, ranks its acute graduates far below theirs, and even below those of the worst "academy"—lacking the symbol of independence—the weekly payment.

This fact, in the attempts to cheapen education, and extend its operations, should be allowed some considerable weight. National education is for the poor; but the poor have "estates" as well as the political body of which they are part. *Their* lowest order is the subject of the police, the ragged school, or reformatory; the middle class—the day-labourer and inferior mechanic—supply the national school with students; the aristocracy, the "respectable" order, that shades imperceptibly into the greater "middle class," are divided between the efficient national school and the cheap academy. The first class will remain a social difficulty—for them coercion and reformation will remain for ever; amongst the two latter the benefits of instruction may be extended; but to withdraw the nominal payment, to reduce the national school to the rank of the "charity" school, which a local rate, for example, would do, would decide the wavering choice of the majority of the most deserving portion of the lower classes. They would prefer the dignity of independence to the value of eleemosynary knowledge.

To produce from these elements a useful, if not a symmetrical system, it needed but to combine with them a proportion of state assistance and central control. But this element requires skilful application. Like the constituents of a chemical compound, different proportions of this ingredient produce dissimilar results, and English prejudices, as difficult of manipulation as the least tractable material of the chemist's art, will combine with it in the smallest quantities. Nothing is so disagreeable to Englishmen as the ostentation of power. Indirectly, perhaps, they may not surrender less of practical freedom than most civilized people; but they dislike the parade of authority, and abhor the perpetual vision of the executive. If they admit state interference in that which they regard as a personal duty, it must come in the guise of a co-operating and suggesting ally—as a counsellor rather than an overseer. This is precisely the position which the State assumes in our existing system; with what success, the aspect of popular education, completely changed in a period measured by the lifetime of many children in our schools, will testify. The angry opposition which saluted the scheme at its birth has passed away; jealousies and suspicion, which watched its early progress, have ceased to exist; and there are few schools, and those commonly within the jurisdiction of corporations, to which improvement comes with heavy feet, or such as Lady Bountiful esteems sacred to the luxury of doing good, over which the Government does not exercise a sufficient, if not an absolute, control. Nor is that control greatly limited by the benevolence with which it co-operates, or the independence which it respects. The "Council Office" is not often at issue with the local committee; its suggestions are commonly as efficacious as the mandates of a continental bureau; and that which "my lords" recommend is far more effectually, because far more heartily, adopted, than that which "my lords" might have power to command.

Such are the materials, and such the merits, of our educational system. It has none of the consistency and completeness so grateful to the theorist; but it possesses all the practical advantages of which our national circumstances admit, or which those who admire a machine more for its utility than its polish hope to secure. Its merit is its adaptation. No doubt its parts require additional strength; that the teaching power needs to be multiplied, and the principle of inspection

may be advantageously extended: but the task of the legislator is to expand the area of its operations, to improve without destroying its approved arrangement, and jealously to guard it from the introduction of those agencies which might paralyze the movements they could not assist. Long, after the signal failure of the session, let us miss the annual educational scheme, coming with the dawn of spring, and leaving as little trace as its snows. That any theorist should surprise us into an error, is to be doubted: the stubborn English prejudices which are interwoven with the zeal for popular education, will in this, as in many cases in which great national interests were involved, supply the place of political wisdom. S. D. W.

INDUSTRIAL TRAINING.—"Some highly-educated persons seem little aware by what humble means many of the best habits of mind may be formed in their children. If such had ever associated with mechanics, they would have learned, that in many, or most mere mechanical trades, the good workmen, however unlearned, are all distinguished by some valuable moral habits, which, however they may be hindered by some personal obliquities from exercising their influence over the whole man, are yet in themselves excellent, and *capable* of leavening the whole character. A good carpenter or a good smith will not do bad work. His master may try to make him do bad work, for a master may esteem it his main business to sell whatever will find a market; but the good workman will not do it; he would rather do what hurts his whole soul—do nothing, and see his family in distress; or work for less than he is worth; either of which wears his heart by the sense of injustice. In short, he must be *accurate* and *truthful*. With the squareness of his work and the straightness of his line are intimately connected his notions of right and wrong. The good workman is *humble* withal; he knows the struggle good work has cost him; and his satisfaction in it is mixed with a sense of his own feebleness in respect to all good work, and all higher work which he cannot himself do. He is *charitable* and *helpful* to others, because he has a fellow-feeling with all who strive as he strove; and he desires that all good work should prosper, as he wishes that all bad should come to an end. He is *noble*, because he feels himself to be a part of the whole army of workers who, from the beginning of the world, have striven in all arts, and all times, and all places, to do their duty in the station of life in which they have laboured. If I have to excuse myself for an apparent digression, my excuse is twofold. 1st. I think that these truths belong really to all work, of whatever kind; and, 2ndly, that just now it is of especial consequence to bear them in mind. I often think of Keble's lines in respect of all work:—

> 'The trivial round, the common task,
> Will furnish all we ought to ask:
> Room to deny ourselves. . . . .'

I never look but with reverence on the features of an aged carpenter, now fourscore, with whom, encouraged by the family laws of my father's house, I used to work in my boyhood. I first learnt in his work and at his bench what I have now related; and never, as a child, saw him at his work, but that I felt the nobleness of labour, and, in his conscientiousness, saw explained the principle of martyrdom for truth's sake; indeed, it is by the observation of such ways, and by such associations for good and for evil, that many of the first notions of our children are formed, their powers directed, and the *quality* of those powers established."—From *Health, Work, and Play;* a capital, noble-thoughted, cheap essay, by H. W. Acland. Published by J. H. & J. Parker.

SUNDAY READINGS FOR BOARDING-SCHOOLS.

We insert the following, as a specimen of short readings, which have been found effective on Sunday afternoons or evenings, more as a means of opening up conversation than as completing the subject in themselves.

A GREEK or Roman heathen would have seen the world of nature around him as we see it every day; yet it will be worth our while to spend a few minutes in inquiring what would have been his thoughts about it: perhaps even in his superstitions we shall find something to admire.

When he gazed upon the stars, there would come up into his mind a thousand tales and traditions about them, half believed perhaps, and half fancied: for they were to him something more than a number of shining bodies, useful indeed to sailors and travellers; for they were the subjects of legends handed down from earlier times, investing each of them with a history, as well as a name and power, of its own.

Hence every man fancied for himself that this star or that star looked kindly or unkindly on him. The moon, too, was believed to exercise an influence over the affairs of men; and as it went through its course in heaven each night, and its monthly changes, reverence was paid to the goddess who sat there enthroned in a globe of pale mournful light. As the ruler of the sun, men worshipped Phœbus Apollo, brother of the goddess of the moon, seated in a car of fire, borne along by immortal steeds, until at evening he sank into the ocean of the west, where a golden cup awaited him, to float him over the waters to the place in the east from which he had to start in the morning.

The sea was not merely water, fit for fishes and sea-plants, as the earth for land-animals and land-plants; but it was the kingdom of a great and powerful god, Neptune: on seats of pearl, in the coral palaces below, there might be seen his queen Amphitrite, Thetis, and thousands of smaller deities, equally important and blissful in their way with the gods who lived in the upper air. Sometimes they were to be seen floating over the waters; often their voices were heard; and with their hands they guided the ships of favoured mortals, or lifted them off from the rocks after a storm. The winds had persons and names; their home was in a huge cavern, from which they issued forth, to sweep over the earth or sea, at the orders of Æolus, their king.

It was believed that on earth the spirits might be heard singing in the woods strains such as mortals could not always hear and live; that Pan, the god of the woods, roamed through his wild kingdom, but woe to the unhappy man who met him on his way; and that around their favoured fountains the deities might be seen to sport. The woodman fancied, that in the sudden rustle of the branches he heard the sound of a god passing by; and with hesitating step would he enter the dark grotto, or tread the glades of the forest, because there, he felt, was especially the haunt of the immortal beings who loved the groves and caverns. The fires of Mount Etna were the workshop of giants, presided over by Vulcan, the god of the forge and of artificers in brass and iron.

The very flowers and trees had their story to tell; some were distinguished as the special favourites of one or other of the greater gods; some by their associations in story; as the hyacinth which just sprung from the blood of a hero.

The changes of the ever-varying seasons were all under heavenly care: when the fragrant blossom appeared, the people sang praise to Aurora, who had nourished it with her tears, and Zephyr, who had swelled it by his breath. The rich clustering grapes were the gift of Bacchus; and for the bending harvest and golden fruits of autumn, thanks were paid to Ceres and Pomona. Men looked upon the drought and mildew, the murrain in cattle, and the devouring swarms of flies and locusts, as indications of the wrath of some gods whose sacrifices and altars they had omitted duly to honour.

In this so beautifully-framed and adapted religion—for it was but man's frabric, made up partly from those remains of heavenly truth which had descended through generation and generation from olden times—there were floating about not only many dreams of beauty and poetry that we would not willingly let die, but also that never-changing teaching, which speaks, through nature, of power, wisdom, and goodness. Nature is the same to us as the heathen of old; she has voices and teaching for us, as well as for those who died long ago: we see the glories of the solemn wood, no less than when, two thousand years ago, such woods were the mysterious meeting-places of the followers of superstitions long extinct; we can fancy that in the ripple of the ocean we can mark the ever-varying smile of which the ancient poets sang; we see the stars in their silent watches through the blue sky, and they look on us with as calming and holy look as on any of the millions who have gazed upon them since the world began. We can enjoy the radiance of the bright sun, and the mild softening lamp of the moon, and know that both sun and moon are His creatures, whose creatures and children we also are; we think of them, not as of deities whom we fear, but as the works of Him whom we love, and who loves us. When we are tossed by the winds and waves of the sea, He is by our side. Though we do not in imagination people the forest and mountain with nymphs, and bacchanals, and cloven-footed satyrs, yet we know that there we are not alone, that we are under blessed guardianship of angels, whom we need not fear—for God has given them charge over us, to keep us in all our ways. When we at last shall go down to the shadowy country of death, we shall not tremble, like Æneas, at the phantoms and shapes of horror around us; for that country will have a brightness for us, for Christ will meet us there.

And even when, as now, we see the freshness and beauty of earth awaking from her winter's slumber with the smiles of spring, though we do not, as the Greeks and Romans would have done, make a solemn procession through the fields, and offer our sacrifices to the gods under whose care they would have been supposed to flourish, yet let us learn from the Greeks and Romans one thing—not to look on unmoved, while cheerfulness and beauty are poured around us, but open our hearts to higher thoughts, that when thinking of the works and gifts, we may draw nearer to the Maker and Giver, our Father and our God.

F. I.

The world is too much with us : late and soon,
Getting and spending, we lay waste our powers ;
Little there is in Nature that is ours,
We've given our hearts away—a sordid boon !
This sea that bares her bosom to the moon,
The winds, that will be howling at all hours,
And are upgather'd now, like sleeping flowers ;
For this, for ev'rything we're out of tune,
It moves us not ;—great God, I'd rather be
A Pagan, suckled in a creed outworn,
So might I, standing on this pleasant lea,
Have glimpses that might make me less forlorn ;
Have sight of Proteus coming from the sea,
Or hear old Triton blow his wreathed horn.

WORDSWORTH. *Sonnet written on the Sea-shore.*

THE AFFECTIONATE TEACHER.—" Love to children, and sympathy with them, therefore, must ever form a prominent feature in a teacher's character. The irrepressible affection of his heart must gush out towards the objects of his tender charge. His beaming eye—his gentle tone—his winning manner—all will be unmistakable evidences of the heavenly fire within,—

——— 'Affectionate in look,
And tender in address, as well becomes
A messenger of grace.'

His will be the 'thoughts that breathe, and the words that burn.' His own soul throbbing with love to the Saviour, he will seek to communicate those pulsations to all the members of his class. With any other than a warm and glowing heart, indeed, it is worse than useless in any one to assume the office. Coldness of spirit, or indifference of manner, should find no toleration here. For want of this essential requisite, how many among the young have already suffered seriously, if not irrecoverably! Instead of being invited, they have been repulsed, and the seeming neglect, or actual unconcern of one, has thus proved the spiritual injury of multitudes. To approach a forbidding countenance, or selfish or unsocial spirit, will be deemed, even by anxious and inquiring minds, as being either an impertinent or an unprofitable act ; and, in either case, a fearful amount of responsibility is incurred. It is of the highest importance, therefore, that the teacher should more and more cherish the spirit of Christian love towards those whom he is engaged in instructing. Herein lies one great secret of his strength. On this vantage-ground he will be enabled to work most effectively. * * * * * *
We presume it will be admitted, that between a teacher and his scholars there must, of necessity, be something in common. Now, what this something is, children themselves are always the first to discover. They seem to have an intuitive perception of those who love them and take pleasure in their company. With narrow, selfish arts they will have nothing to do, while to the man of warm and benevolent sympathies they are sure to be attracted. The feeling is mutual, and so the action is electrical. Hence the discovery sometimes made of a person's disposition by his feelings towards children, and by their feelings towards him. Hence the saying of the philosopher, 'Never make that man your friend who hates the laugh of a child.' And hence, too, the suspicion which we always feel, that those cannot make effective teachers who do not possess warm and genial souls."—*Rev. Adam Blyth.*

LUNAR ROTATION.

To Jelinger Symons, Esq., B.A.
One of H.M.'s Inspectors of Schools.

Sir,—Although you are literally deluged with letters on this subject, yet I presume that you will not object to receive remarks from any one who writes in a scientific spirit, with the hope of inducing such as hold the same opinions as yourself to adopt the views of those illustrious astronomers and mathematicians with whom you are at issue. For the sake of convenience, my observations will chiefly take the form of remarks upon some points in your paper in the English Journal of Education for June last.

On p. 258 you say—"Arrest the Moon in her revolution round the Earth, and she will be motionless, because she has no axial rotation;" and p. 273—"Whilst the axial rotation is independent of a motion of translation, lunar motion depends on it, and ceases with it." These are fundamental assertions, of which you have offered no proof whatever. I believe that if you could arrest the revolution of the Moon, its rotation would continue, and that the lunar rotation does not depend upon its motion of revolution in such a sense as to cease with it. The experiments of E.B.D. and your friend the astronomer (p. 258) were intended to show this. There is some difficulty in trying both of them, as it is difficult to avoid jerking in suddenly stopping the revolution, and the effects of friction in E.B.D.'s experiment with a light tin disc will be sufficient to destroy its value altogether.

The experiment I suggest is this, merely, however, as a rough illustration for the use of the non-scientific:—Tie a short string tightly round one end of a hammer, and by means of the string whirl the hammer round your hand. The hammer then revolves round your hand, and in consequence of the string, always turns the same face towards it. In the midst of the whirling, let go the string; the hammer flies off at a tangent, and its centre of gravity describes the well-known parabola, instead of a circle as before; but the *rotation* continues as before, as may be seen by the motion of the handle of the hammer, which forms a tail revolving about the centre of gravity lying near the head of the hammer, and thus makes the rotation evident. As in this experiment any jerk of the hand in letting the hammer loose must act along the string, and therefore in a line passing through the hammer's centre of gravity, it can have no influence upon the hammer's rotation. The only disturbing action arises from the resistance of the air; but if the weight of the hammer renders this inconsiderable, a stone or brick will do as well as a hammer. I am unable to account for this rotation, of the reality of which any one may convince himself, upon any principle but the well-known one of the persistance of motion, so that the motion of rotation was given by the whirling of the stone round the hand in such a manner as to force one face of the stone to point to it.

A traveller in a railway-carriage, after the train is in motion, moves in the same way as if he were rigidly fixed to the seat. We may represent his motion through space, therefore, as if he were so. This precisely corresponds to your rigid connection of the Earth and Moon

on p. 256. But if we argued from that circumstance that the motion of the traveller is dependent upon the motion of the carriage, and ceases with it (as is truly the case for the seat on which he rests), we should be very soon undeceived when the carriage suddenly stopped, by seeing the traveller dart forward. This is a precisely analogous case of the persistance of motion, and of the error introduced by employing a rigid system to represent a system of two independent bodies.

I will now with your permission make a few remarks on your observations on the second letter of Professor Airy. He says, p. 268:—"Every point in the Moon's body does also describe a ring round that axis of the Moon which is perpendicular to the Moon's orbit, *that axis being a travelling axis.*" In p. 269, you quote these words, leaving out the part italicised, and say that "he must surely mean an axis in the centre of that orbit, and not in the Moon's body;" but this supposition is rendered impossible by the words in italic; for the centre of the Moon's orbit is not, *with reference to the Moon*, "a travelling axis." But you proceed to say, that "this is rendered more probable by his subsequent statement, that 'a body [*consisting of firmly-connected parts*'—these important words are omitted in your citation] 'if it rotate at all round any centre whatever, must, by geometrical necessity, so rotate that all points move in concentric rings relative to that centre;' and he also says that 'every point in the Moon's body describes a ring round the Earth.' Thus, then," you continue, "the Earth is the centre round which the Moon is said *to rotate.*" But this does not follow from Professor Airy's words, because the Earth and Moon do *not* "consist of firmly-connected parts;" and hence your application of the expression is incorrect. You proceed, however, to say, it must be so, "*for*, in no *revolving* body can any point by any possibility form concentric rings round more than one centre." This is incorrect, although your apparent use of *revolving* instead of *rotating* occasions some perplexity as to your precise meaning. If a body *rotate* and its axis of rotation *travel*, then a point on the surface of that body may describe any curve whatever with reference to a *fixed* point, which is therefore not situate on the travelling axis of rotation: this results from the composition of the motion of rotation round the axis, with the motion of translation arising from the travelling of the axis. Of this more hereafter.

On p. 271, note †, you say:—"An easy mode of proving that No. 1 *is* axial rotation is this: Stand on the edge of the circular plate on which railway-carriages are turned; have it turned from west to east, and see if it be possible to preserve your face always to the north without turning on your own axis from east to west." Now, to me it seems impossible for any one who *simply* turns on his own axis from east to west, to keep his face to the north. But if he stands, *not* on the edge, but at the *centre* of the turning-plate, so that the axis of his body coincides with the axis of the plate, you will allow, I presume, that the plate turns him round his own axis from west to east. In this position, however, he will *also* have to *turn himself* on his own axis from east to west, in order continually to face the north. The fact is, however, that these two turns neutralize each other, and he really does *not* turn at all. In the case of a human subject, this is easily felt by the action of rotation to produce giddiness. Let a man (still presumed to be at the centre of the plate) be turned quickly round, and he will soon be giddy; let

him counteract that turn by an opposite one, so as really to remain at rest, and he will have no sensation of giddiness. Now, whether he stand at the centre or at the circumference of the turning-plate, his turning on his own axis from east to west keeps his face to the north, and therefore must be counteracted by a motion of rotation from west to east, which is in fact given by the turning-plate itself, causing him to *revolve* about the axis of the plate by the friction of his feet on the plate which *rotates*, and therefore also to rotate. The only difference in the two cases is, that when he stands at the centre, his centre of gravity remains at rest, and when he stands at the circumference, his centre of gravity moves in a circle.

On p. 271, you say:—"The law determining the rotation on its own axis of any moving body may be thus defined: so long as the same point in the circumference of the moving body is cut by the radius vector, that body does not rotate; and conversely, whenever different points of its circumference are cut by the radius vector, it has rotated." Now, the very expression of this law is vitiated by your neglecting to assign the *origin* from which the radius vector is drawn, and the *point* to which it is drawn; so that the line itself to which you refer the motion is not known. As, however, you were evidently only thinking of the case of one body revolving about a central point, I presume that you mean by the radius vector a line drawn from that fixed point to the centre of gravity of the rotating body, and not (as is usually meant by a radius vector) to the point in that body whose motion we are considering. If this is your meaning,—and so indistinct is your enunciation of the "law," that I am not sure whether I have apprehended it rightly,—then, by the rotation of a point in the revolving body about its centre of gravity or axis, you only mean, *the angular separation of a line joining the centre of gravity and that point, from a line joining the origin and the centre of gravity.* I believe, indeed, that this is the idea which you, and all those who maintain that the Moon has no rotation on its own axis, have in your mind. But you will observe that *this only gives the amount of rotation with reference to a moving, and in this case revolving or rotating line.* The amount of rotation thus determined, is, therefore, the *difference* between the amounts of rotations of the radius drawn from the origin to the centre of gravity of the revolving body, and of the rotation of a radius of the revolving body drawn from the centre of gravity to the point in the circumference, when both are measured by their amount of angular separation from a *fixed* line in space. This *difference* may vanish; in which case there will be no rotation of the revolving body *according to your mode of measuring it,* while there will be such a rotation according to the common, and (with due submission) *natural* mode of estimating it with reference to a fixed line in space. To show the importance of mentioning the line of reference, it is sufficient to refer to the fact that the time of the *Earth's* rotation relative to a *fixed* line is 23 h. 56 m. 4·09 s., relative to a line joining the centre of the Earth, and the *mean* Sun 24 h., and relative to a line joining the centres of the Earth and Moon, 24 h. 54 m. on an average, all reckoned in mean solar time. Now if we reckon the Moon *not* to rotate, that is, if we refer rotation to the radius vector from the centre of the earth to the centre of the Moon, it is absolutely necessary to consider the time of rotation of the Earth to be about 24 h. 54 m., because

it is necessary to refer both motions of rotation to the same line, in order to compare them. If, then, we refer the motion of rotation of the Earth to the line joining the centres of the Sun and Earth, the Earth makes about $365\frac{1}{4}$ rotations in a year; if we refer to a fixed line in space, about $366\frac{1}{4}$; but if we refer to the line joining the centres of the Earth and Moon, about $351\frac{3}{4}$. How many times then should we say that the Earth rotates on its axis in a tropical year? "It is only by referring the points of bodies to *fixed* planes and objects in space," says M. Poinsot, in his *Théorie Nouvelle de la Rotation des Corps*, a work which I recommend to your notice, and the only one which gives a clear picture of that very difficult subject—rotatory motion, "that we have been able to find the differential equations of this motion [of a solid in space], and to integrate them, or at least reduce their integrals to quadratures, in the simple case of a body which is free from all external action." The whole difficulty into which you have fallen arises from your *not* referring the rotation to "a fixed plane or object in space."

The same idea seems to have confused Mr. Perigal in his mathematical investigation, p. 274, in which, in fact, he has *assumed* the very point in dispute. The investigation there given is imperfect in the statement, apparently from the omission of some paragraph. It should be made purely geometrical, without any mention of *velocity*, as this introduces a mechanical element. I submit the following geometrical considerations.

Let O and O' be the centres of any two circles on a plane, of which the radii $O\,M$ and $O'\,M'$ are parallel. Draw the radius $O\,P$ in the first circle, making the angle $P\,O\,M = \theta$, and then draw $O'\,P'$, making the angle $P'\,O'\,M' = \theta'$. At the extremity P, draw $P\,Q$ parallel and equal to $O'\,P$. Then if θ alters continuously and $\theta' = f\theta$, where $f\,\theta$ is not a discontinuous function of θ, θ' alters continuously; and if $O\,M = a$, $O'\,M' = a'$, and the co-ordinates of Q referred to O be x and y, the locus of Q is determined by eliminating θ and θ' from the three equations.

$$x = a \cos \theta + a' \cos \theta'$$
$$y = a \sin \theta + a' \sin \theta' \qquad \theta' = f\theta$$

while $\theta' - \theta$ will be the angular separation of $O'\,P'$ from $O\,P$.

Now, if $\theta' = o$, that is, if the radius $O'\,P'$ do not revolve, but remain constantly in the position $O'\,M'$, this locus is clearly $(x-a')^2+y^2=a^2$, or a circle with the same radius as $O\,M$, but with the centre at O'', on the line $O\,M$, where $O\,O''=O'\,M'$. This is the geometrical case corresponding to your figure A No. 1. And as $\theta'-\theta$ then $=$ '$-\theta$, there will be a retrograde rotation of $O'\,P'$ relative to $O\,P$, although $O'\,P'$ is really at rest.

Next, let $\theta'=\theta$, in which case the radius $O'\,P'$ is always parallel to $O\,P$, and therefore *both* radii revolve or rotate exactly similarly. Then the locus is $x^2+y^2=(a+a')^2$, which is a circle concentric with $M\,P$, and having its radius $O\,M''=O\,M+O'\,M'$. This is your case A No. 3, and is also (approximately) the case of the rotation of the Moon and its revolution. As in this case $\theta' - \theta = O$, there will be no rotation of $O'\,P'$ relative to $O\,P$, although $O'\,P'$ really rotates *once* for each rotation of $O\,P$.

Next, let $\theta' = 2\theta$, in which case the radius $O'\,P'$ will have completed *two* rotations when $O\,P$ has completed *one*. In this case $\theta' - \theta = \theta$, and hence $O'\,P'$ will have completed one rotation with reference to $O\,P$, when

$O\,P$ has itself completed one rotation. This is the case investigated on p. 275, and gives the same locus as there determined, namely—

$$2\,a^2\,a'\,x + a'^2\,(a^2 - a'^2) = (x^2+y^2)^2 - (a^2+2\,a'^2)\,(x^2 + y^2).$$

If we take $2\,\theta' = \theta$, then $\theta' - \theta = -\,\frac{1}{2}\theta$; and when $O\,P$ has rotated *twice* in one direction, $O'\,P'$ will have rotated *once* relative to $O\,P$, but in the *opposite* direction, while it will really have rotated *once* in the *same* direction as $O\,P$. The locus in this case is—

$$2\,a'^2\,a\,x + a^2\,(a'^2 - a^2) = (x^2 + y^2) - (a'^2 + 2\,a^2)\,(x^2 + y^2).$$

Now it is evident that the path described by Q in these cases is dependent upon the path described by P, and that instead of giving the *locus* of P to find that of Q, we might give the locus of Q to find that of P. Now the locus of Q is the path described in one plane by a point in a rotating body whose centre of gravity describes a given path; and it is clear from the above observation that the path described by such a point may be any whatever that is: it may not only describe a circle round P, but also round any other point whatever. Hence, as I formerly stated, your assertion (p. 269) that "in no revolving body can any points by any possibility form concentric rings round more than one centre," falls to the ground. Thus the point Q, when $\theta' = \theta$, not only describes a circle about P, but also round Q, owing to the motion of P round Q, and the circle described by Q is concentric with that described by P.

On p. 273 you state "the chief geometrical differences between axial rotation and lunar revolution." In examining them I will, however, leave out of the question the actual motion of the Moon, and take the simple geometrical case of $\theta' = \theta$, because that is the case which you mean by lunar revolution. These differences you state are:—

"1st. That in the former [axial rotation] the revolving body turns every part of it round its own centre or axis, while the Moon does *not*." But the Moon *does* so turn every point with reference to any *fixed line*. You say, indeed (p. 265), "If the Moon were alone in chaos, the question of her rotation or non-rotation would be nowise altered." By "chaos," I suppose you mean space, in which no fixed points can be taken. But in that case, however truly the Moon might rotate, no rotation could be known or determined, for we should have nothing to which to refer it. You go on, indeed, to say: "The rotation of a body is determinable by the relative movements of different parts of its own body, quite independent of reference to space, or to any external point." But in no *solid* body, however much it may rotate, have its different parts *any* "relative movements," so far as I understand your meaning. Hence, if what you said were correct, there would be no means of determining its rotation, without reference to space, &c.,—although this is not what you mean. In fact, even when there are external points visible, an inhabitant of the rotating body rather supposes the external points to revolve than himself, as in the case of the Earth and stars.

You continue your statement on p. 273 thus:—"2nd. In axial rotation, all points of the rotating body must describe concentric circles round its own centre, whilst in the Moon no point does." Every point in the Moon does describe these concentric rings, referred to the Moon's centre as at rest. That they do not plot down as concentric rings, results from their being combined with a second motion of translation; but on deducting this, the original rings reappear.

I must own that I am unable rightly to understand the words which you have employed in explaining the "3rd difference." I do not see how, "as regards her orbital revolution, all points in the Moon move with increasing or diminishing velocity successively;" for if there were no motion of rotation in our model moon, each of its points would describe a similar orbit in the same time and with the same velocity; but these orbits would not be concentric. Nor do I see that at present "each point moves with the same speed," unless by "speed" you mean 'angular velocity about the earth's centre.' Indeed, your next remark seems to contradict this one, when you say—"All those points in the outer hemisphere [move] *faster* than those in the inner hemisphere, these two hemispheres never changing their relative position of inner and outer." The division is not exactly into two hemispheres, the boundary being not a plane, but a portion of a sphere, of which the centre of the Earth is the centre. But this is of little importance. What is the cause of the difference of speed? Simply the composition of the motion of rotation round the Moon's axis with the motion of translation round the Earth. For the points in the so-called outer hemisphere, the motion of rotation acts to carry every point forward in the same direction as the motion of translation, and therefore to make it move faster than the centre, which is unaffected by rotation. For the points in the so-called inner hemisphere, the motion of rotation acts to carry every point backwards, or in the contrary direction to the motion of translation, and therefore to make it move more slowly than the centre. When the Earth moves round the Sun, two similar terrestrial hemispheres may be determined at any moment, but on account of the Earth's period of rotation being much shorter than her period of revolution, these hemispheres are perpetually composed of different points.

You proceed to say—"4th, in axial rotation, all points in the circumference of the rotating body must successively intersect the radius vector, whilst in the Moon one only does." I have already shown that this arises from your referring the motion of rotation to a moving instead of a fixed line.

"5th. While axial rotation is independent of the motion of translation, lunar motion depends on it, and ceases with it." The first part of this statement, to which I drew attention at the beginning of my letter, is true; the second part, I have already endeavoured to show you, is incorrect. If you could prove the second part, the controversy would be at an end; but so would the first law of motion likewise. I suspect that your illustration of a system of two balls *rigidly* connected, here leads you into error; because, in this case, when the motion of translation ceases, the rigid connection also causes the motion of rotation to cease. But there *is* a motion of rotation in every part of a rigid body which rotates, this part revolving round the axis, and rotating about its own axis, only precisely because this rotation of the smaller part ceases with the rotation of the whole mass, on account of the rigidity of the connection, it is usually disregarded. On a revolving disk mark out two points, then the line joining these points will be directed successively to all points of the compass during a rotation of the disk; and hence, in the only sense which mathematicians can affix to the term, either of these points revolves or rotates (as they are rigidly connected) round the other, with reference to a fixed line, just as much as if the centre of

rotation of the disk were transferred to either of these points, and the other were, therefore, turned about it in the most self-evident manner.

The following contrivance may make these rotations clearer to non-mathematicians :—Cut out two disks of cardboard, and draw one radius in each. On the larger disk make two holes, one in the centre and one near the circumference on this radius, in which two pins can turn easily. Pass a pin tightly through the centre of the other smaller disk, so that when the pin is twisted by the finger and thumb, the disk rotates, and when it is not so twisted, the disk does not rotate, with reference to the fingers with which the motion is naturally compared. Now, first by a crank-like motion of the right arm (the left hand supporting the pin on which the large disk turns) cause the pin of the small disk, which is placed in the second hole of the large disk, to make the large disk rotate without twisting the finger and thumb, and therefore without rotating the small disk. If you start with the two radii in the same straight line, you will find that the angular separation of the two radii passes thorough all angles in one revolution: hence an apparent retrograde rotation of the smaller disk with reference to the larger radius, and a sensible non-rotation with reference to the finger. Next rotate the large disk with the fingers of the left hand, and without touching it with the pin of the small disk, move the small disk round the larger, so as to keep the two radii in a line; you will find it necessary to twist the pin between your finger and thumb to do so, and hence sensibly to rotate the small disk, while the same disk is now at relative rest with regard to the large one. This instrument, which can be immediately constructed, overcomes the fallacy arising from the rigid connection, by showing that when one body is in motion, any other which is relatively at rest to it must have a precisely similar motion.

Hence it appears to me, that instead of allowing persons to refer motion now to one moving line and now to another (as in the two rotations of the Moon and Earth), and now to a fixed line or plane (as all mathematicians do), it would be more advisable to make them understand the relative nature of motion, and show them the importance of referring *all* motion to *one* fixed line or plane, in order that their relative motion might be discovered,—as in the case of specific gravities we compare all bodies with water in place of with one another. Motion relative to such fixed lines or planes is often called "absolute motion," the term "relative" being commonly, but not necessarily, confined to motion relative to some moving point. Hence *Herschel* (Outlines of Astronomy, p. 55) says, "The relative motion of two bodies is the same as if either of them were at rest, and all its motion were communicated to the other in an opposite direction. Hence, if two bodies move alike, they will, when seen from each other (without reference to other inner bodies, but only to the starry sphere), appear at rest. Hence, also, if the absolute motion of two bodies [*i.e.* their motions relative to fixed lines or planes] be uniform and rectilinear, their relative motion is so also."

Some of your correspondents object, that if astronomers are correct, then every man in the world and every ship revolves upon its own axis. This is true; and that it is true is shown by the fact that ships sailing round the world from London to Cape Horn lose a day in their reckoning, owing to their having turned on their own axis once in a direction

contrary to that of the Earth; while those ships which sail by the Cape of Good Hope gain a day, from having turned once on their own axis in the direction of the Earth's rotation,—both in addition to their having turned once on their axis for every rotation of the earth. If there were no interposing Earth, the night would be just as much caused by our backing the Sun, as may be readily seen by walking round a table, with your back constantly turned to it, and placing a lamp or other object at a distance to represent the Sun. The case of losing and gaining the day is well exemplified in the difference between the sidereal and the mean solar year, and in the loss of a sidereal day in 9,448,300 solar days, owing to the precession of the equinoxes (Herschel's Outlines of Astronomy, p. 624).

On p. 262 you say,—"To close this part of the subject, I have simply to suggest that one of the best practical modes of illustrating the difference between lunar revolution and axial rotation is, I think, to conceive a waggon travelling horizontally round a circular wall, with one wheel dragged and another revolving, as usual. The dragged wheel represents lunar motion, and the other axial rotation: that is the difference. It has been argued that one is only a quicker 'rotation' than the other: it may as well be said that walking is a quicker pace than standing still." Part of the misconception implied in this quotation arises, I think, from confounding revolution round an *axle* with rotation round an *axis*. The axle of the wheel is a separate body, which may or may not rotate; and the wheel which revolves round or in respect to it causes any point in its own inner boundary to describe a line about the outer boundary of the axle. It may happen that both the axle rotates and the wheel revolves, with equal speed, in the same direction, with reference to some external object. In this case there is no relative rotation, or the axle and wheel are at relative rest. This effect is produced by rigidly fastening the wheel to the axle while the waggon is dragged round a circle.

Rotation round an *axis* is quite different, because the axis is itself an actual or geometrical *part* of the revolving body, and is, moreover, a geometrical line, having no diameter. There is no slipping or gliding of any part of the rotating body over this axis, as there is of the revolving body over the axle. Rotation consists simply in the fact that the line drawn from any point perpendicular to the axis points successively to all points of the compass, and this is the case with the dragged as well as with the free wheel, and with the axle of both wheels. The dragged wheel and its axle both rotate *once* in a revolution of the waggon, with respect to a fixed line, and hence the wheel does not revolve on the axle, and would not even if there were no rigid connection, but only some force applied to prevent friction causing the wheel to revolve. The free wheel revolves a certain number of times about its axle, and *rotates* once more, with respect to a fixed line, in the course of one revolution of the waggon; that once more not appearing as a motion round the axle, because of the rotation of the axle itself.

A mast does not move with respect to a ship in motion, but it does move with respect to the shore; and a man who walks from the stern to the prow moves faster than the mast with respect to the shore. This is precisely one of the cases in which we may apply your words, and say, that "walking is a quicker pace than standing still!" Your words were

incomplete, because you neglected to mention to what the "standing still" was to be referred. A man who "stands still" on the Earth's surface is really moving very fast through space; but if he moves *on* the Earth's surface, he may move partly in the direction of this motion or partly against it. In this case, again, "walking is a quicker (or slower) pace than standing still." The path described by the top of a mountain round the Earth's surface is longer than that described by its base in the same time, yet we say that both "stand still." In this case, then, "standing still is a quicker (or slower) pace than standing still!" This is a complete *reductio ad absurdum* of such non-relative phraseology.

My letter has extended to such an unexpected length that I forbear to allude to other matters which I had marked, especially the effects which you seem to attribute to centrifugal force to produce the rotation whence it is derived, or the independent existence which you assign to it when revolution ceases (p. 259). I have also throughout confined myself to the supposition of one body revolving about another, so that the axes of both are parallel, and I have taken the motions of revolution to be circular and uniform. In fact, I have excluded all the particular circumstances of the Moon's motion, which your theory would leave unaccounted for. But I cannot conclude without saying, that your machine, consisting of two balls rigidly connected, is very misleading, and does not in any respect represent the real motions of the Earth and Moon. Thus it will not lead any one to the conception of the Earth's rotation being different from that of your central ball, namely, in about the ratio of $27\frac{1}{4} : 1$. It will not allow of any librations of the Moon; for which you have, in fact, not accounted at all, either in longitude or latitude. To suppose that there is a special oscillation of the Moon, is to suppose something which the theory of gravitation must be altered to account for; whereas the theory of a uniform rotation of the Moon on its own axis, and its non-uniform revolution round the Earth (another omitted circumstance), together with the inclination of that axis to the Moon's orbit, and its conical revolution in about nineteen years (all with reference to fixed lines and planes), accounts for all of them.

Hence I conclude, that so far from astronomers having introduced confusion by their saying that the Moon rotates on its axis with reference to a fixed plane, it is those who have talked of her having no axial rotation, without mentioning what line they refer the motion to, while they really refer to a revolving line, who have introduced the confusion—a confusion which always arises on all subjects where the absolute is substituted for the relative.

Hoping that you will read this long letter in the spirit of scientific discussion which has actuated the writer, I remain, with due respect,

ALEXANDER J. ELLIS.

SYMPATHY WITH CHILDREN.—"One of the greatest secrets of success in managing the young, is sympathy with them as children. Nothing but this will lead to a proper understanding and appreciation of the motives by which they are governed, or enable us rightly to estimate the efforts they make for improvement.

* * * * * * * *

Happy is the teacher who can really enter into the feelings and motives of childhood; and fortunate is the teacher who can discriminate between the apparently wrong actions which are caused by such sudden impulses, and those which are the result of deliberate intention to do wrong."—*American Journal of Education.*

THE MOON CONTROVERSY.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—The controversy on the rotation of the Moon about its axis has suggested to me some reflections which I think not unworthy of attention in your Journal. It is a common notion that mathematical studies enable men to become good reasoners. That this common notion is an error, appears from the recent controversy. I have heard that a gentleman of considerable repute among the learned said, that all the answers to Mr. Symons in the *Times* were also wrong. It is not difficult to see why they were so. In the first place they lost their tempers; they were indignant that anything which they said should be called in question; they wished, in short, to be considered infallible. So their mathematics did not save them from this first essential of good reasoning—a calm, unimpassioned love of truth. Consequently, in the second place, they never got sight of the real question, and so talked to the wind. As both parties agreed in all the facts of the case, it is clear that the question was one of words or definitions, or by what names the facts should be called. What the mathematicians should have done was, to have laid down the definition of the term rotation about an axis, and then shown that their definition described the facts of the case. Their definition would probably have been opposite to a thing called "common sense:" hereupon they might have called upon their opponents to define what they meant by "common sense." This, if honestly followed out, would have raised questions about realities, questions of infinitely greater importance than this mere verbal question. It would have appeared that "common sense" may be of two kinds: that there is a reflecting common sense and an unreflecting common sense, such as that which would have sent Galileo to the scaffold; and that out of their own peculiar department the mathematicians are allied with the mob of unreflecting common sense, and have none of that right to which they have of late shown a disposition to lay claim, for the purpose of putting down some facts and truths which are now bursting on the world. Let, then, youth be taught not to prostrate its understanding before either great names or that unreflecting common sense to which, I am afraid, every one of us is too apt to yield his judgment.—I am, Sir, your obedient Servant,

Great Marlow. W. P. GASKELL.

DR. LARDNER ON LUNAR MOTION.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

PARIS, *June 7th*, 1856.

SIR,—You will much oblige me by rectifying, in your next number, an error into which Mr. Symons has inadvertently fallen, in one of his quotations from the tract on the planets, published by me in the "Museum of Science and Art." Immediately on the publication of the first number of the work, in January 1854, I discovered an oversight which I had committed in hasty writing, and I immediately had the leaf cancelled, and the error corrected, although it was sufficiently apparent by the context that the mistake was little more than a slip of the pen. It appears that Mr. Symons, by a most singular circumstance, after the lapse of more than two years, has come into possession of one of the few copies of the number in question which were put into circulation before the leaf was cancelled and the error corrected; and finding that the erroneous sentence accorded with his curious lunar theory, he has quoted it in italics, mixed with capitals. A reference to the corresponding page in any copy circulated later will show the error into which Mr. Symons has thus unintentionally fallen.

I have written a paper upon the question of the Moon's Rotation, which I trust will convince any person moderately conversant with elementary mechanics, that the Moon has the rotation which Mr. Symons denies to it, and have sent it to London for publication. I hope it will put an end to the Lunar controversy—if controversy that can properly be called in which all those who are considered by the world in general (including Mr. Symons himself) as the highest authorities in science are of one opinion.—Your obedient Servant, DION. LARDNER.

[Dr. Lardner (who is living abroad) is quite in error in his last statement in this note. Mr. Symons's position seems to be this:—"The lunar movement is the revolution of a sphere round a distant centre keeping same face towards it; this is not the rotation of a sphere round its *own* centre, and should not be so called." Very many scientific men are of this opinion; and a very eminent Wrangler is among them.—ED. E. J. E.]

LOCAL WORDS.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—There is a variation in print from the order in which the *Local Words* (inserted in the May number of the ENGLISH JOURNAL OF EDUCATION) were written.

The words *shim, smudge, swip, wattle, wrest, yax,* ought to appear amongst those used in Kent, and the following—*tar-marl, teem, thrushel, topping, toppled, tray, tumbrel, unheppen, vartual, welsh, wemble, whallop, wimbeam,* ought to be amongst the Lincolnshire words. The term printed "*leawt*" was "*lean to.*" The postscripts are reversed; the one under the second letter belonging to the first, and that under the first to the Kent words of the second. In defining "*wimbeams,*" I ought to have used the word *rafters,* instead of "*joists* of the roof."

If you will be kind enough to insert this, I shall feel greatly obliged. The accompanying list of Lincolnshire words is at your service.—I am, &c.,

RICHARD DES FORGES.

Goodnestone, near Wingham, Kent, June 11*th,* 1856.

Belfer, a framework on pillars, &c., on which corn-ricks are built.
Blore, to bellow.
Boggle, an apparition.
Bran, used with new; thus, a 'bran' new knife.
Brat, an old ragged rug.
Brog, to goad.
Cadge, to go with miller's cart.
Chep, to split, from the sun's heat.
Clag, to draggle.
Clatty, sticky.
Cleck, the husk of barley.
Clock, a beetle.
Craw, to crow.
Cull, to select the worst things from a number of others.
Culls, things selected as above.
Cut, a lot; as to draw 'cuts.'
Dither, to have a tremulous motion.
Drape, an old cow or ewe.
Fag, a sheep-tick.
Fligged, fledged.
Glor-fat, very fat.
Grew, a greyhound.
Grob, to grub.
Harrow, to overcome with fatigue.
Hēder) for *he* in composition; as a 'heder'-lamb for *he*-lamb.
Hobble, a difficulty.
Hoin: a pig is said to 'hoin' when he squeals.
Jalp, to shake a liquid by carrying so as to spill it.
Kell, the fat about the kidneys of a hog.
Kibble, a kind of bat for driving a ball.
Limmick, flexible.
Lithe, to thicken milk, &c., with flour.
Orn, own.
Pippin, a crock.
Porket, a small fat pig.
Poy, an instrument for moving a barge, one end of which is placed at the bottom of the water while a man leans on the other.
Pucker, difficulty, a scrape.
Randy, time wasted at the alehouse in drinking.
Root, to move the earth as the hog does with its nose.
Saucy, too nice about food.
Scrudge, to crowd.
Shan, wild.
Shēder, used for she, in composition; as a 'sheder'-calf.
Side, long.
Sight, a great quantity.
Siss, to hiss.
Skinch, to stint.
Slape, smooth.
Sloshways, slopewise, diagonally.
Squad, mud.
Squaddy, muddy.
Stavers, the rounds or steps of a ladder.
Stew, dust raised.
Stodge, a kind of soup or porridge.
Stowp, a low post.
Strinkling, a sprinkling.
Swall, to wash by throwing with large quantities of water.
Tang, a barb or sting.
Tidy, a pinafore.
To-year, this year.
Weant, will not.
Whinnick, to laugh loudly.
Wreak, drifted snow, &c.

THE PUNCTUATION QUESTION.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—I trust you will not deem me intrusive or litigious if I again trespass upon your pages for a brief space: I would be the last to desire they should become the

field of unprofitable controversy; but as fact is stranger than fiction, and as "C. H. D.'s" replication to my former letter may produce a false impression in the minds of your readers, and still lead them to attempt a chase after a mirage, I would endeavour to spare them the pains, and set them right in the somewhat inutile path they would thereby tread.

My original object in criticising Mr. Davis's remarks was to show the inexpediency of necessarily incompetent persons attempting to legislate with regard to the innumerable minutiæ of typographical arrangement, or, in their own particular instances, essaying to make exception to the style adopted in any printing-office, especially when such alteration was unfamiliar to and inappreciable by those for whom the benefit was intended. I briefly drew attention to his crude attempts at reform, therefore, by way of caution, and refrained from entering largely into reasons, because I deemed they would be only too apparent, as I still believe they must be, to the majority of your readers. Mr. Davis having experienced some annoyance at the hands of careless, or it might be ignorant printers, seeks to show that the body are unable to legislate for themselves, and that it is high time for the Public to step in, and duly instruct this sadly deficient guild!—a remedy, according to his own showing, so inefficient, as to permit every author to exercise individual judgment [query whim?] in the production of his work;—for as to imagining that *the public* would be guided by Mr. Davis's infallible rule, even if *printers* consented, is simply to entertain an impossibility.

I did not in my communication think it necessary to give specimens of the diversities of plan mentioned, but Mr. Davis would have had a tangible reply to his question if he had reflected sufficiently to refer to the plan pursued in your own Journal, which, taken *in toto*, is unlike either of the *two* instances he cites as being the ones in use in London offices. I will now, however, partly comply with his request, remarking that the subjoined variations are more or less used, wholly and in part, in the printing of books in this 19th century:—

Style 1.	"(?)"		Style 1.	"*
,,	[?]		,,	*"
,, 2.	('?',)		,, 2.	"—*
,, 3.	—(?)—		,,	"*—
,,	(?)—		,, 3.	—"*!
,,	—(?)		,,	—"!*
,,	( )		,, 4.	":"
,, 4.	,( ),		,,	:"
,,	,( )		,, 5.	!'"
,,	( ),		,,	'!"
,,	,(,)		,,	'"!
,, 5.	?( )		,, 6.	?";"
,,	( )?		,,	?"
&c.		&c.	&c.	

Perplexing enough, truly, you will say; and too plainly evidencing the difficulty of maintaining a *fanciful* discrimination in their use.

There is no accounting for such crotchets, many of which seem quite untenable; but the plan most generally adopted (in the JOURNAL OF EDUCATION, for instance,—always excepting "C. H. D.'s" articles) avoids, to a great extent, unsightliness and eccentricity, whereas the one propounded by Mr. Davis is inutile in practice, unpleasant to the eye, and perplexing to the sense.

I must plead guilty to having misquoted Mr. Davis's article, but quite unintentionally so, and not sufficiently, I think, to affect the real argument. Your readers will judge whether my criticisms do not even now stand the test of Mr. Davis's reply, with the single exception of the italicising the word "v.," which is, I again urge, unnecessary and *improper*, because, in the case he cites, the contraction "ver.," or the word "verse," itself, is recognised as a proper distinction, instead of the false *emphasis* which he would substitute.

In conclusion, I must again suggest to Mr. Davis that he is standing on unsound premises; and repeat, that if he had discoursed on Punctuation proper, with a view to its more general adaptation, and not run foul of typographical eccentricity, upon which "doctors" themselves cannot agree, he would more profitably have employed both his own time and that of your readers.—I am, yours truly, F. F. W.

[This discussion must terminate here. It does not touch on topics of broad educational interest, nor is it of any great practical moment even as a matter of detail.—ED. E. J. E.]

Notes of New Books.

LITTLE BOOKS.

Memoirs of Little Arthur. This is a pretty little book, containing the sayings of a little child who died at an early age; and the authoress has not fallen into the common error of many mothers who write their children's memoirs; namely, that of portraying the children they have lost as nearly perfect beings.

The Golden A B C. (London: Parker, 1856.) This is beautifully illustrated; but, we must confess, a more useless book we have seldom seen, as children cannot be expected to learn their alphabets, much less how to read, from such fanciful letters.

Text-Book, or the Method of Working the First Four Rules in Arithmetic. By Henry D. Brooke. Second edition. Pp. 15. (London: Simpkin and Marshall.) This very useful little book has passed through a second edition, and we hope the succeeding numbers will be equally serviceable in helping children to comprehend the more difficult rules.

Bell's Series of Poets.—Ben Jonson.—(Parker & Son.) This is an admirably biographed and annotated edition, and is a valuable gem in this choice poetical diadem. We shall shortly give an article on some of the most favourite poets who have already had their niches in the Messrs. Parker's gallery.

Fraser's Magazine for May. A good number; but we must greatly modify our former praise of Kate Coventry. There is now an absence of all womanly decency of conduct in the heroine, which no pluck or other good quality can possibly atone for. What can have possessed the writer thus to blur so promising a tale? The condemnation of it is now universal.

The Massachusetts Teacher. Vol. I. No. 5. (Boston: Coolidge.) A most excellent educational periodical. The United States set a good example to Europe in this important branch of school literature.

Manual of Prayers for the Use of Schools. Pp. 43. (London and Oxford: J. H. Parker, 1856.) This is a useful little book, and some of the prayers are very good and pious, without fanaticism, as are also the heads for self-examination. We hope it may be generally used in schools.

Florum Sacra. By the Rev. G. H. Smythan, B.A. 2nd edition. Pp. 54. (London: J. & H. Parker, 1856.) This a prettily-written book, and calculated to inspire good and kindly feelings.

The Training School Song-Book. Edited by A. D. Thomson & W. Sugden. (London: Simpkin & Marshall, 1856.)

The Choral Wreath. Parts I., II., III. (London: Simpkin & Marshall, 1856.) These are very useful additions to the school-room, containing good secular and sacred pieces, and will aid in making children cheerful and giving them a chaste taste for harmony.

Cottage Pictures from the Old Testament. (London and Oxford: Parker, 1856.) These are very prettily done, and calculated to add considerably to children's interest in the Old Testament history.

Notes of Lessons on the Collects. Part I. By Henry Brooke, C.L.S. Pp. 52. (London: Wertheim and Mackintosh, 1856.) These notes supplement the collects with useful facts and explanations, chiefly historical and etymological, but they should be fuller, and explain the meaning of each petition more instructively.

Daily Text Book. By J. Drage. Pp. 28. (London: Stevenson.) This small book has its merits; but its fault is, that the precepts, &c. are too curt, except as a sort of index to the texts they refer to. It would be useful as a skeleton for a thesis on all duties and scripture principles. It is very suggestive of lessons for questioning.

*** Several books received will be reviewed next month.

SERIALS RECEIVED.

Frazer's Magazine; the Penny Post; Museum of Science and Art; Greek Texts, with notes,—Sophocles; Sophocles—short notes; Two to One.

LUNAR MOTION DEFINED.*

[FROM THE "MINING JOURNAL."]

THE discussion respecting the Moon's movement has lately created great excitement and very animated arguments amongst our scientific men, both in England and on the Continent. This discussion has originated in a letter sent to the *Times* from one of her Majesty's Inspectors of Schools, Mr. Jelinger Symons, in which he maintained that the astronomers were wrong in stating that the Moon rotated on her own axis. The *non*-rotation of the Moon appears to us self-evident, from the description given by the astronomers themselves; viz. "The Moon, in revolving about the Earth, keeps the same face always towards us." This observed fact is admitted by all. But astronomers state, that *because she does always present the same face* to us, she *must* rotate on her own axis once a month; and that if she did show her whole body to us all round once a month, she would then have no rotation. It is difficult to conceive how they arrive at these conclusions, which appear so opposite to the ordinary effects of rotation and revolution in terrestrial movements. However, as Mr. Symons, in his pamphlet, has fully entered into the merits of the argument, *pro* and *con.*, and has rendered the question clear and free from all obscurities, and as our correspondent, Mr. Hopkins, has also maintained the same view as Mr. Symons, and has lately elucidated the question in the *Mining Journal*, we need not repeat many of the illustrations, but refer our readers to the pamphlet itself.

The notion of the Moon's rotation must have originated in a misconception, and the confounding of the turning round by means of revolution with that of turning round by rotation. This error having been once accepted and then established, is, like many other errors, obstinately retained by our mathematicians, simply on that account, in opposition to their better judgment, and to the laws of, and the terms employed in, the science of dynamics. It is very commonly remarked, that it is a singular fact that men who have been trained in the science of mathematics, from whom we have a right to expect a clear conception of what they undertake to instruct, and precise definition of all matters pertaining to that science, should be so often found the most confused, contradictory, and unintelligible in their arguments.† We are taught in

* "Lunar Motion: the whole Argument stated, with Letters from the Astronomer Royal on the subject." By J. Symons, Esq., B.A. Price 6d., 8vo. Groombridge & Sons, Paternoster Row.

† The "Moderators" of Cambridge have lately called the attention of the Mathematical Board to the following points:—"They complain at the want of giving definitions and explanations of fundamental principles completely and fully.... This remark applies more especially to elementary dynamics and astronomy; in both which subjects *the papers, even of the more distinguished of the candidates for honours, have frequently exhibited a want of clearness of conception, and of habits of close and accurate thought.* The course of examination for ordinary degrees is, in too many cases, merely got by rote, without being at all understood." A reformation in University training is much wanted, and it is gratifying to observe that such a reformation is now recommended in the right quarter. Mathematical students will, before long, cease to be deep in the calculus and the binomial theorem before they clearly understand the additions of two fractions, the common laws of mechanics, and the difference between spinning round and moving round a centre.

dynamics that *rotation* simply means the act of turning round on an axis or centre situated *within* the body; *revolution* means the act of turning round on an axis or centre situated *outside* of the body. Although both necessarily turn round, the two motions are yet quite distinct, and their respective centres of motion have definite positions—that is, the one *within* and the other *without*.

When we were informed that the Astronomer Royal had condescended to enter into this discussion, and had written two explanatory letters on the subject to Mr. Symons, we anticipated that such an eminent authority would have removed some of the obscurity which has caused the dispute; that he would not only employ the terms rotation and revolution strictly according to their true meaning, and confine himself within the circle of the Moon, but also boldly enter into the dynamical merits of the question, showing how astronomers prove that the Moon rotates.

We have been much disappointed. Professor Airy's letters appear to us somewhat incongruous and contradictory, and tend to envelop the points in dispute in increased darkness. We shall quote a few paragraphs that bear on the question. Mr. Symons requested the Astronomer Royal to give his opinion on the subject; the following is an extract from his first reply, dated Greenwich, April 19:—"Suppose that a body moving freely in space, whose motion is determined by the attraction of two (the Sun and the Earth), rotates. If we wish to determine either the fact or the velocity of its rotation, we must refer the direction of some produced radius of the body to some zero point. What shall that zero point be? The Sun? Not at all. Ought it to be the Earth? *A fortiori*, no. What then is it to be? Clearly the same which is the point of reference for all other rotations [revolutions?]; viz. some point (as a star) at a distance so great that the motion of the Moon in going round the Sun does not sensibly disturb the direction of the line from the Moon to the star."

It must be admitted that this is a strange way to determine whether the Moon rotates or not. We need not observe, that the question of rotation has nothing whatever to do with the attraction of the Sun and the Earth, nor yet with the annual motion of the Moon round the Sun, but simply, *does the Moon turn round on an internal centre or not?* Surely such a simple dynamical movement ought to be easily demonstrated, by referring only to the Moon herself within the space of her monthly orbit, without bringing in the whole of the solar system, and the sidereal regions besides.

The Astronomer Royal then proceeds:—"Having thus come to the point that rotation is to be referred to something very distant, as a star, and *not* to anything near, as the Sun or Earth, there is little difficulty in ascertaining from observable appearances whether the Moon does or does not rotate. Does she always turn the same part of her face to the same star? No. Then she does rotate [revolve?]. If her face has been once turned to a star, how long a time elapses before it is turned to the same star again? $27\frac{1}{4}$ days. Then $27\frac{1}{4}$ days is the time of her rotation" [revolution?].

This is an extraordinary mode of reasoning, by so high an authority as the Astronomer Royal. If the Moon truly and simply revolves round the Earth, she must, as a natural consequence, show different

faces to the starry regions by her orbital motion. Had she continued to show the same face to the same star, she could not revolve, much less, rotate. Professor Airy must mean the Moon's *revolution* in her monthly orbit. His explanations are totally irreconcilable with the simple action of rotation. The mere rotation of the Moon has no relation whatever to space. Were the Moon the only object seen in the heavens, her rotation or non-rotation could be ascertained with equal precision. Why then refer to the stars?

How do we determine whether the Sun rotates or not? Do we refer to the stars, or any other distant objects? Certainly not. We simply observe the visible hemisphere, and watch the black spots moving across the disc, and thus we find that the Sun rotates, and that the period of that rotation is 25 days 7 hours 48 minutes. Had the dark patches seen on the Moon moved across, like the black spots on the Sun, we should then observe a motion resulting from her own axis—that is, rotation; but as the Moon constantly presents the same face towards the centre of her orbit, she is equivalent to a body fixed in a ring, and therefore cannot rotate. Indeed, this is a self-evident proposition, and cannot be controverted.

All bodies that float on the ocean, in the air above, within the Moon's orbit, that accompany the Earth in its movements round the Sun, are to all intents and purposes attached to it, although the connection may be invisible. And if such bodies in moving round the Earth always present the same parts towards its centre, be those parts the keels of vessels, our feet, the feet of birds in flying, the clouds, or the face of the Moon beyond, it is precisely the same thing; they cannot, under such conditions, rotate on axes parallel to the revolving axes.

The Astronomer Royal, in his second letter, May 5, fully confirms the impression, that what he means by rotation (as far as the Moon is concerned) is her revolving motion; inasmuch as he distinctly states, that "Every point in the Moon's body does describe a ring round the Earth, that Earth being a travelling centre." This shows plainly the effects of a revolving motion, but what are we to make of the following observation?—"Every point in the Moon's body does also describe a ring round that axis of the Moon which is perpendicular to the Moon's orbit, that axis being a travelling axis." If this means rings of motion round an axis *in* the Moon, it is in direct contradiction to the former statement; as it is utterly impossible that two such distinct circular actions of any given points on the Moon could co-exist.

The Astronomer Royal very clearly states, that, "With reference to the Earth, the invisible half of the Moon moves with the greatest velocity," as compared with the visible half. This agrees with her revolving motion; but unfortunately this is again neutralized by the following remark:—"With reference to the Moon's centre, the two halves of the Moon move with equal speed." How is it possible to reconcile this statement with the former? How can the inner portion of the segment of a circle travel at the same rate as the external part, or move at equal speed?

The Astronomer Royal then proceeds to state, that "A body consisting of firmly-connected parts, if it rotate at all round any centre whatever, *must* (by geometrical necessity) so rotate that all points move in concentric rings relative to that centre; and the speed of each particle

relative to that centre, will be proportional to the distance from that centre. But this does not at all determine where that centre is." The centre of rotation must necessarily be within the circles, and in the body; it cannot be situated without, because in that case the motion would be no longer rotation, but revolution, and consequently could not describe rings on the body; the rings must, therefore, determine the position of the centre. How then can it be said, that "this does not determine where that centre is?" Professor Airy concludes his letter with the following observations:—"Suppose it be known that a body does rotate, with reference to any specified axis, then the body may be said, with equal propriety, to rotate [revolve?] round any other axis parallel to the former, provided that this be accompanied with a statement of the motion of translation of the new axis relative to the former." It is difficult to comprehend the meaning of this paragraph, and had it not been written by such an authority as the Astronomer Royal, it would have been attributed to the want of knowing the distinction and the true meaning of the terms rotation and revolution, and the necessary situation of their respective axes.

The following paragraphs in the second letter of Professor Airy show that the terms rotation and revolution are not employed according to their strict meaning by astronomers:—"Nobody scruples to say that the Earth revolves round its axis," and "It is true that if the motion of any point of the Moon be laid down, conceiving the Earth to be fixed, it shows distinct circular monthly rotation round the Earth."

If astronomers confuse these questions by employing the terms rotation and revolution as synonymous, and actually use them, as above, *vice versâ*, we need not be surprised at the endless discussions and contradictions that have taken place on the single motion of the Moon. Her Majesty's Inspector of Schools deserves our gratitude for pointing out this error, and for his perseverance in striving to remove such a serious blot from *educational* astronomical books.

LUNAR MOTION.

TO ALEXANDER ELLIS, ESQ.

SIR,—Though bound to deny the soundness of your science, I readily admit your courtesy, respect your useful services to education, and admire the courage with which you volunteer a defence for anonymous Wranglers, and rush into the lists in behalf of everybody's rotation round their own separate axes, whilst we all stand still on the Earth, simply because our noses point successively to different stars. I had vainly imagined, from the admissions I have received from many really scientific men, and the generally admitted fact that I have not yet been *answered*, that you all felt the impossibility of showing that each *part*, or any part of the radius of a circle, rotates round itself, as well as turns round the centre of the circle to which it belongs; and agreeing with me as to what is the actual motion of the Moon, I began to hope you rotators had candour as well as science enough to admit that rotation round her *own axis is* a mis-statement of that motion. It seems, however, that we are *nearer to the* times of Galileo than I fancied. The Williams and Lardners

of those days believed in one Aristotle just as devoutly as those eminent men believe in Herschel and *W.* Hopkins now. He was oracular: and among the sacred Aristotelian tenets which Galileo was bold enough to deny, was, that if a one-pound weight fell a certain height in a certain time, a ten-pound weight would fall ten times faster. This was demonstrated by problems quite as plausible as those by which you have endeavoured to refute Mr. Perigal. Unluckily for poor Galileo, he was not deterred by the "scientific horrors" of the Aristotelian Hopkinses, and had the "astounding boldness" to put his statement to the test. He accordingly assembled the Cantabs and Doctors of his day, and let fall at the same instant large and small weights from the top of the celebrated leaning tower of Pisa. Yet, with the sound of the two weights clattering upon the pavement at the same moment, they still maintained that the ten-pound weight would reach the ground in one-tenth part of the time of the other, because they could quote the chapter and verse of Aristotle where the fact was asserted,—just as all the lunar rotators can point to chapter and verse in La Place & Co. Now, inasmuch as it is an admitted fact that the Moon revolves round the centre of her orbit, *keeping the same face always towards it* (though true it is that she turns entirely round once in so doing, and *of course*, of necessity, presents each part of her to all points of the compass once in succession), is it not self-evident that, as far as her motion is concerned, she would perform it just the same were she and the Earth, and any other number of balls in the same line, transfixed by a rigid pole revolving, as on a pivot, round the common centre of their orbit? If so, how can any such ball, or any part of such radius, be said to rotate round *its* centre? If it did, all points in the Moon, or in such bit of radius, must of necessity, as Professor Airy admits, form concentric rings round the centre of rotation within itself. I assure you, that though you affirm the contrary, no point in any ball, so revolving as to keep same face to centre of orbit, does or can describe a ring round its own centre; and as this may be very easily tested, I consider your assertion far more inexplicable, and quite as hopeless, as that of the Aristotelians, who would not believe their own eyes or ears at the tower of Pisa. Your hammer experiment, like E. B. D.'s tin moon, and my friend's flat board and ball, admirably illustrates that the Moon can have no such second motion as rotation; for the moment the orbital revolution ceases, and the centrifugal force *alone*, without centripetal to counteract it, as in your hammer experiment, takes effect unchecked, the rotation *begins;* and that it did not exist before, is incontestably proved by its immediately turning different faces towards the centre of the orbit! If the Moon were served in the same fashion, I have no hesitation in admitting that she would do exactly the same thing, and begin to rotate, as your hammer begins to do *after* it quits the sling and takes its tangential flight. I need hardly say that I made the assertion that she would be motionless if her orbital revolution ceased, as a mere corollary to the assertion that she had but that one motion, and no rotation on her own axis: a fact capable of proof by any instrument which does not misrepresent the special character of the lunar motion. The rigid connection is that which makes the experiment analogous; for the lunar motion is precisely, bating the librations, such as would exist were there really a *rigid connection.*

I assure you I did not misuse Professor Airy's statements: they are these:—

1. "A body, consisting of firmly-connected parts, if it rotate at all round any centre whatever, must (by geometrical necessity) so rotate that all points move in concentric rings relative to that centre."

2. "Every point in the Moon does describe a ring round the Earth, that Earth being a travelling centre."

I deduced from this (see page 19 of "Lunar Motion"), that as in no revolving body (and I used the term advisedly, as the most comprehensive, but "rotating body" will do as well) can any points by any possibility form concentric rings round more than one centre,* the Earth, according to Professor Airy, is the only centre round which the Moon forms such rings, and revolves, or can be said to rotate.

If you and other rotators choose to pick out other passages in Professor Airy's letters by which you think you can show that he holds inconsistent views, that is your affair. But you are not helped in your difficulty in escaping from this syllogism by laying stress on the words "firmly-connected parts." Professor Airy did not apply this expression as you represent,—to the Moon *and* to the Earth,—or he would not have said "*a*" body; for the Moon and the Earth are *two* bodies. Neither will the "travelling centre" help you; for both the Moon and the Earth have centres which, though "travelling," travel together, the one being in the centre of the other's orbit. Therefore their dynamical relation to each other is as if the Earth were at rest. Thus it is that all attempts to support the doctrine of rotation by references to fixed points or lines in space are futile. The Moon's motion as *to rotation or non-rotation* could be determined, as I said, even if her centre were at rest, and she alone in creation, by the rotation or non-rotation of points in her around her centre, moving in concentric rings,—a fact requiring no reference whatever to any external objects. You are misled, like every one else who is still against us, by the palpable fact that she turns different faces to fixed stars or points of compass; and of course the pin in the disk you suggest (p. 330) will twist in any one's hand who holds it from outside the circle of orbitation; but surely you need not be told that as this results from *any* revolution, it is no proof of the rotation of a body *round its own axis.* Draw a line, dividing your disk into two hemispheres; one will be within, the other without the centre. Make it revolve, and you will find that no point in the inner hemisphere ever rotates or turns round the centre. How, then, can it be correctly said that the whole body rotates round the centre, if one-half of it does not? The fact is, that the centre turns round the inner hemisphere. But to reduce the non-rotation of the body of the Moon to a practical proof, substitute a single point for the Earth, at the centre of the Moon's orbit, and without changing the motion of the Moon, bring that point in her edge which is nearest the centre of her orbit into exact coincidence with it; she will then revolve round it, that point *being at rest.* Are you prepared to say that a sphere, having one point of its circumference at rest, is rotating?

---

* *If you* really question this, try to draw a diagram in which they do. It will be *a geometrical* phenomenon, which I should like to see.

Mr. Perigal wishes me to tell you, that if you like to call upon him, he will show you how bicircloidal and other curves are formed by instruments which he has had constructed for the purpose. Like myself, I presume he is unable to comprehend your geometrical proofs without a diagram. When, however, in the case which represents lunar motion, you say, that "as $\theta' - \theta = O$, there will be no rotation of $O'\ P'$ relative to $O\ P$, although $O'\ P'$ *really rotates once* for each rotation of $O\ P$," it is plain that you use the word rotation to express what we assert to be simple orbital revolution; and that, so far from proving it to be rotation, you are reduced to the necessity of simply affirming it to be so.—I am, Sir, with much respect, yours truly,

J. SYMONS.

P.S.—Dr. Lardner, I observe, is sorry that I copied his correct dynamical statement: the day will come when he will regret that he withdrew it. How much better it would be for modern astronomers (notwithstanding their Cambridge tethers) to say, "We have for some generations copied La Place, who made a mistake. *We* understand the real lunar motion correctly enough by rotation; but as it must mislead others, we will drop it, and define the lunar motion as the revolution of a sphere once round a distant centre, keeping the same face towards it." All the world would agree in the accuracy of this, and it would have the additional advantage of being intelligible to all the world. I may, perhaps, be permitted to add, that I do not think it necessary to *write* more on this subject. Some instruments and diagrams are, however, being prepared, which, by aid of the magic lantern, will enable some who are interested in setting this question at rest, to give such lectures on the whole subject of the Moon, including the recent discoveries by Mr. Breen and others, as may elucidate this interesting branch of astronomy, and explode the misuse of "rotation" from astronomical books.

THE MOON'S MOTION.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—Concerning the Moon's motion, the solution of the difficulty seems to be, that axial rotation ought to be regarded as either absolute or relative, according as it is independent or dependent on the body's revolution about a distant centre. For example: if a ball be stuck on each leg of a pair of compasses, and one leg be fixed while the other describes a circle, each ball will turn all its points successively about its axis towards a fixed point in space,—the North, for instance. This appears to be the strictly mathematical notion of axial rotation; only the ball on the fixed leg, however, has *absolute* rotation on its own axis, the axial rotation of the other being dependent on its revolution about its companion.—I am, Sir, your obedient Servant,

H.M.'s Dockyard, Pembroke. SAMUEL A. GOOD.

HINTS ON SCRIPTURE LESSONS—No. 5.

THE GOOD SAMARITAN.

SELFISHNESS is a frightfully prevalent sin. Perhaps it is the very most frequent sin. There is scarcely an hour in the day that the selfish man does not bestow some attention on himself, to the sacrifice of some duty he neglects for it. With him, that which will minister to his comfort, or his pride, or his power, or his income, or his gratification, is always uppermost, and consideration for others always undermost in his mind. This is the exact spirit of self-love so frequently reprobated by our Lord, the opposite spirit being, in fact, the very essence of Christianity.

The parable of the Good Samaritan is the best Scriptural picture of this principle carried out into practice, and the zealous teacher will take pains to improve it accordingly. It is a favourite one with children. Let us follow it in the narrative first, so as to continue our plan of suggestive comments for instruction.

The parable, St. Luke x. 29, is introduced by the question of "a certain lawyer—Who is my neighbour?" wishing, we are told, "to justify himself." Now this arose from the grand precept of the law just before uttered by the lawyer at the request of our blessed Lord—"Thou shalt love the Lord thy God with all thy heart, and with all thy soul, and with all thy strength, and with all thy mind; AND THY NEIGHBOUR AS THYSELF. This do (said our Lord) and thou shalt live." The lawyer was trying, it seems, by his questions, to narrow the scope of this duty, and so to justify himself; and also, perhaps, to show off his powers of disputation with Jesus before the bystanders, and to get our Lord to propound other conditions of eternal life than those of the law: which would have answered the lawyer's purpose, and prejudiced Christ and Christianity with the Jewish populace. Our Lord took him up. [The Greek term ὑπολαβων does not mean merely answering, but rather retorting, or replying in argument.] And now begins the parable which is to teach us, as well as the lawyer, who is our neighbour, and what our conduct is to be towards him.

V. 30.—"A certain man went down from Jerusalem." This clearly means—"A man of Jerusalem went down to Jericho." There is a similar construction in Matt. xv. 1. The great feature of this parable lies in the countries, and their enmities, to which the men belonged who figure in the story. This Jew is robbed, beaten, stripped, and left nearly dead on the wayside. It was a road infested by banditti [λῃσται signifies murderous robbers].

V. 31.—The priest, also a Jew, going by. Now he, of all others, was bound to be kind to this man: first, he was a fellow-townsman of his; secondly, he was a priest: and if we turn to Hebrews v. 1, 2, we find it to be the especial duty of priests to have "compassion" on others. This priest, however, had none. He passed by, and left the poor man in his misery to die by the roadside.

Then comes the Levite. Another of the same body of men devoted to the priesthood, and especially bound to help the Jew (Malachi ii. 4); *yet he passed* by on the other side. Dwell on the cruelty and selfishness *of this* conduct; and give other illustrations of it.

VV. 33, 34, 35.—These verses detail the arrival of the Samaritan, who renders to the poor maimed and deserted Jew the kind offices which his own fellow-countrymen failed to give him. The contrast is the stronger, owing to the fact, that the selfish men were priests, and therefore the more bound to do works of charity, while the benevolent man was a Samaritan, whose nation was not only at enmity with the Jews, but whose people (see 2 Kings xvii. for their origin) had no dealings with each other; as the woman at the well near Sychar said to our Lord—"The Jews have no dealings with the Samaritans;" John iv. 9.

The fact also should be remembered, that the man was on his journey, and in a distant country from his home. The money given to the host, two-pence, seems small; but the pence were Roman pence, in value about seven-pence-halfpenny of our money, and doubtless the charges of inns were in those days much less than at present. But the money was only in advance, as an instalment.

The great lesson taught by this parable is, the Christian duty of doing as we would be done by. It teaches more; it shows that enmities and hatred and uncharitableness are obnoxious to God; that we are not to cherish or act upon feuds, and allow our dislikes to interfere with our charities, as is the habit of hosts of people who call and think themselves Christians. The Jews circumscribed their social duties—"Thine *own* friend, and thy *Father's friend* forsake not," &c.—Proverbs xxvii. 10. Christ enlarged them; he cleansed the Samaritan leper, and *won his heart*—Luke xvii. 16. Here is a grand lesson taught, though we never recollect to have seen or heard it noticed. Is not this fact intended to teach the virtue of kindness in allaying feuds, softening enmities, and making friends of foes?

Some people wish to carry the analogy in this parable further, and to push it to a representation of Christ, and his second coming (to repay the host). This, however, is doubtful; and it will, perhaps, be better in the absence of direct authority, to avoid any narrowing of so useful a lesson of the law of love, but to give it its full breadth and bearing on the great practical duty of man.

The various ways in which we neglect services to those who have no particular friendship for us, may be censured when reading this glorious parable. It is not every man who will leave a stranger to die by the roadside; but their name is legion whose selfishness extends to a daily and hourly indifference to the wants, feelings, and interests of those to whom they are bound by no especial tie. Oh, that charities were cosmopolitan! What a millennium of peace would ensue! What a metamorphosis of the present arena of quarrels, mutual injuries, and warring interests, for an interchange of benefits, and a state of temporal welfare and social happiness, of which the world has never seen an example! And yet it is to be accomplished, whenever men who read the parable of the Good Samaritan, shall "*go and do likewise.*" S.

THE RULE OF THREE.

THE Rule of Three was generally taught as a case of proportion; and although in later books this plan is frequently discontinued, the writers seem to think that it is only by a sacrifice of theoretical consistence, to the shrine of simplicity. Now, although the Rule of Three *direct* can be made a case of proportion, this is not the case for the Rule of Three *inverse*. The Rule, in fact, belongs to a class of problems which are only soluble by proportion in *one* particular case. It seems better, therefore, to solve them by one general consideration in all cases. This will be done at the close of this article in a mathematical form. The question is first treated as it might be advantageously presented in the most elementary works on Arithmetic.

Single Rule of Three Direct.

We continually meet with two quantities which bear such a relation to one another, that we cannot multiply or divide one of them by any number without multiplying or dividing the other by the same number.

Thus, double the quantity is sold at double the price; double the work done is paid for by twice the wages; double the distance travelled is charged double fare; double the capital employed should produce double the profit; double the principal lent is paid for by double the interest; double the labour expended produces double the work done; double the number of eaters consume double the quantity of food; and so on.

It must, however, be observed, that in most of these cases it is only within certain limits that the assertion is true. For example, in the case of buying and selling, the relation ceases at the point where retail transactions pass into wholesale, and conversely. Again, two men's work is often more than double one man's. Double labour bestowed on cultivation does not produce so much as double the crop. Double the heat applied to a body does not always expand it to double the size. And, in general, doubling the cause by no means always doubles the effect. Even a child will feel this, and he should be made then to understand that the assumption is frequently only true of *averages*.

In any case, therefore, in which we know two quantities which *are* so related to each other (universally, on an average, or between known limits), if we suppose either to change, we can readily find the corresponding change in the other, by multiplying and dividing that other in the same manner as we multiplied and divided the first to produce the given change in it.

Thus, if 5*s.* buy 7 *yards* of cloth, and we change 5*s.* into 8*s.*, we, in fact, multiply 5*s.* by 8, and divide the result (40*s.*) by 5. Hence we must also multiply the 7 *yards* by 8, and divide the result (56 *yards*) by 5, thus obtaining $11\frac{1}{5}$, the answer to the question, how many *yards* would 8*s.* buy in that case?

The statement is as follows:—

If 5*s.* buy 7 *yards*,

$\frac{8}{5}\cdot 5s.$ or 8*s.* buy $\frac{8}{5}\cdot 7$ *yards*, or $11\frac{1}{5}$ *yards*.

In this case, we clearly find the two lower quantities by multiplying

the two upper by the lower given *number* (8), not the *quantity*, 8*s.*, and dividing by the *corresponding* upper number (5).

The order of the quantities (about which so much is usually said) is quite indifferent, provided we put together those which actually correspond, and keep like quantities under one another. Thus we may write—

If 7 *yards* cost 5*s.*,

$\frac{8}{5}\cdot 7$ *yards* or $11\frac{1}{5}$ *yards* cost $\frac{8}{5}\cdot 5s.$ or 8*s.*

But as a matter of convenience, and that only, we may arrange them in *one* line instead of two, and place the quantity sought in the fourth place, thus:

If 5*s.* buy 7 *yards*, then 8*s.* buy $\frac{8}{5}\cdot 7$ *yards*, or $11\frac{1}{5}$ *yards*.

The rule *then* becomes—

"To find the fourth *quantity*, multiply the second *quantity* by the third *number*, and divide the result by the first *number*, after the first and third *quantities* have been reduced to the *same* denomination."

This arrangement is most convenient when any reductions have to be made. Thus,

```
      s.  d.        yds. qr.        s.  d.
If    5   6   buy    3   1   then   2   8  buy ?
     12                4            12
     --              ---            --
     66               13            32
                      32
              66 ) 416 ( 6 qrs. 1 7/33 nail=
                   396     1 yd. 2 qrs. 1 7/33 nails.—Answer.
                   ---
                    20
                     4
                   ---
                    80
                    66
                   ---
                    14
```

Children may be led by the rule thus stated to overcome the two great difficulties they usually experience; viz. to tell, first, which is the multiplier and which the divisor; and secondly, what is the denomination of the result. At the same time, they may be able to judge whether any chance example is really one in the Rule of Three direct or not (often a great difficulty), and to feel the reasons for the operations they perform. The first examples set should involve very small figures, in order that the sole difficulties should lie in the statement, and the *form* of the questions should be as varied as possible.

Single Rule of Three Inverse.

We also often find two quantities so related to one another, that we cannot *multiply* the first by any number without *dividing* the other by the same number, and conversely.

Thus, doubling the length and *halving* the width, leave the area *unaltered; doubling* the capital and halving the time should leave the

profit unchanged; doubling the number of men and halving the time of labour should leave their work unchanged; doubling the eaters and halving the time of eating should make no change in the consumption; doubling the speed and halving the time leave the space run over unchanged; and so on.

In this case, therefore, if we know the change in one we can readily find the change in the other, by *multiplying* and *dividing* this last by the same numbers by which we had to *divide* and *multiply* the first, in order to make the required change in it. Observe that division corresponds to multiplication, and conversely.

Thus 17 feet in breadth correspond to 27 feet in length,

then $\frac{3}{17}\cdot 17$ or 3 ft. in breadth correspond to $\frac{17}{3}\cdot 27$ or 153 ft. in length.

If we arrange the quantities in one line and put the quantity sought last, thus:—

If 17 feet in breadth correspond to 27 feet in length, then 3 feet in breadth correspond to ? feet in length.

We have the rule:—

"To find the fourth *quantity*, multiply the second *quantity* by the FIRST *number* and divide the result by the THIRD *number*, after reducing the first and third *quantities* to the same denomination."

Double Rule of Three.

Sometimes a quantity depends on *two* others in such a manner that if the first is multiplied or divided by any number, *either* of the other two must be multiplied or divided by the same number, and consequently the first quantity remains unchanged if one of the others be multiplied and the other divided by the same number.

Thus double the work will be done by double the men in the same time, or by the same number of men in double the time, but the same work will be done if the men be doubled and the time halved. Again, double the interest will be produced by double the principal in the same time, or by the same principal in double the time, while the interest remains unchanged if the principal is doubled and the time halved. Similar relations hold for the food eaten to the number of consumers and the time; for the space run over to the velocity and the time; the moving force to the weight and speed; and so on.

In this case we have in fact a direct and an inverse rule of three in the same example, and hence its name of *double* rule. The application of both rules therefore leads to the result. Thus—

If 273 loaves are eaten by 26 men in 7 days
? " " 13 " 8 "

To alter 26 men into 13 men we must multiply by 13 and divide by 26; hence—

$$\frac{13}{26}\cdot 273 \text{ ..... } \frac{13}{26}\cdot 26 \text{ or } 13 \text{ ..... } 7$$

To change 7 days into 8 days we must multiply by 8 and divide by 7: hence—

$$\frac{8}{7}\cdot\frac{13}{26}\cdot 273 \text{ or } 156 \text{ ..... } 13 \text{ ..... } \frac{8}{7}\cdot 7 \text{ or } 8.$$

In this case each alteration has been made separately, first the loaves

and the men, and next the loaves and the days being multiplied by the same fraction. But both operations might have been taken together, and the loaves multiplied by *two* fractions, *one* of them multiplying the men and the other the days, thus :—

$$\frac{8}{7}\cdot\frac{13}{26}\cdot 273 \text{ or } 156 \;\ldots\ldots\ldots\; \frac{13}{26}\cdot 26 \text{ or } 13 \;\ldots\ldots\ldots\; \frac{8}{7}\cdot 7 \text{ or } 8.$$

In such a case as this it is best to make the reductions first (when they are required), then state the question with the reduced numbers, and afterwards perform the multiplications and divisions indicated, cancelling as much as possible.

The example just worked is sometimes said to be in the Double Rule of Three *direct*. But the same data supply means of solving two examples sometimes distinguished as in the Double Rule of Three *inverse*. There is, however, no need to distinguish them thus. They are

If 273 loaves are eaten by 26 men in 7 days
then 264 „ would be „ ? „ 11 „

Here we first have, by a direct process,—

$$\frac{264}{273}\cdot 273 \text{ or } 264 \;\ldots\ldots\ldots\; \frac{264}{273}\cdot 26 \;\ldots\ldots\ldots\; 7$$

and by an inverse process

$$\text{the same} \;\ldots\ldots\ldots\; \frac{7}{11}\cdot\frac{264}{273}\cdot 26 \text{ or } 16 \;\ldots\ldots\ldots\; \frac{11}{7}\cdot 7 \text{ or } 11.$$

A slight change in the numbers would have reduced the number of men to a fraction, and as this is absurd, to avoid it in this and similar cases we may state the example thus :—If 273 loaves form 26 *men's rations* for 7 days, then 265 loaves form $\frac{7}{11}\cdot\frac{265}{273}\cdot 26$ or $16\frac{2}{33}$ *men's rations* for 11 days. And the answer thus becomes intelligible.

The other question relates to the number of days, and is as follows :—

If 273 loaves are eaten by 26 men in 7 days
then 264 „ „ 11 „ ?

$$\text{First } \frac{264}{273}\cdot 273 \text{ or } 264 \;\ldots\ldots\ldots\; 26 \;\ldots\ldots\ldots\; \frac{264}{273}\cdot 7$$

$$\text{and the same} \;\ldots\ldots\ldots\; \frac{11}{26}\cdot 26 \text{ or } 11 \;\ldots\ldots\ldots\; \frac{26}{11}\cdot\frac{264}{273}\cdot 7 \text{ or } 16 \text{ days.}$$

In this case a fractional result (such as $16\frac{2}{33}$ days, had the second number of loaves been 265) could have been made intelligible.

In practice both operations might be performed at once, as in the direct rules; but as these examples occur seldom, it is safer in all three cases to make the two changes separately.

The same principles apply so obviously to the more complicated cases where two quantities, A and B, are related to three C, D, E, so that doubling A or doubling B necessitates doubling C, or D, or E, while no change is made by doubling one of the three, C, D, E, and halving another of them, that there will be no occasion to discuss them separately. Leaving the arithmetical we proceed to the

General Single Rule of Three.

Let A and B be any two related quantities of the same or different *kinds; such, that when* A *is* changed into A', B is changed into B', and

let $A':A=x$, and $B':B=y$, so that x and y may be zero, or any positive or negative integer fraction or incommensurables—that is, any *scalars* in Sir W. R. Hamilton's nomenclature. Then, if A, B, and A' are known, B' may be found from the equation $y=fx$, or $B':B=f(A':A)$, which equation must be derived from some known properties of the quantities A, A', B, B'. This is the very simple general proposition of which the Single Rule of Three Direct and Inverse are very particular cases.

1. Let $fx=x$, then xA corresponds to xB, and this is therefore a case of the Rule of Three Direct. But in this case $y=x$ gives $B':B=A':A$, which is a case of proportion. Conversely, if $B':B=A':A$, $y=x$; but as this is a case of proportion, the equation will hold when the multiples of A and A' interlie in the same order as those of B and B' (Euclid: Book V. Def. 5); and this will be the case if no *integral* multiple of A can be taken without taking the same *integral* multiple of B. Hence the general case, for any scalar multiplier can be deduced from the particular case of any integral multiplier. In practice, the multiplier 2 is usually assumed, and the cases of the Rule of Three Direct thus recognized.

2. Let $fx=1\div x$, then $B':B=A:A'$; and this is *not* a case of proportion, although the language of proportion is strained to say, that B' is to B in the inverse ratio of A' to A, or that B *varies inversely* as A.

3. Let $fx=1\div x^2$, then $B':B=(A:A')^2$, which may $=A^2:A'^2$ when A and A' are straight lines or numbers. This is again not a case of proportion, but B' is said to be to B in the inverse duplicate ratio of A to A', or B varies inversely as the square on A. This relation holds when B is gravitation and A distance.

4. If $fx=x^{\frac{3}{2}}$, then $B':B=(A':A)^{\frac{3}{2}}$; or if the quantities are straight lines or numbers, $B'^2:B^2=A'^3:A^3$. In this case B' is said to be to B in the *sesquiplicate* ratio of A' to A. This relation holds for the planets, if B is the periodic time and A the solar distance.

5. If $fx=\sqrt{(1-x^2)}$, then $B':B=\sqrt{[1-(A':A)^2]}$, for which relation no straining of the language of proportion has yet been invented. It implies that $B':B$ is the cosine and $A':A$ the sine of the same angle.

The mathematician will perceive that $y=fx$ is the equation to a curve which may be called the typical curve of each case, and that if we replace x and y in this equation by $x\div a$ and $y\div b$, the resulting curve, $y\div b=f(x\div a)$ will correspond to the relation $B':B=f(A':A)$, and will therefore serve to determine B' when A, B, and A' are given. The curves for the five cases considered will therefore be—first, $ay=bx$, a straight line; secondly, $xy=ab$, an hyperbola referred to its asymptotes; thirdly, $x^2y=a^2b$; fourthly, $a^3y^2=b^2x^3$; and fifthly, $a^2y^2+b^2x^2=a^2b^2$, an ellipse referred to its principal axes. If x', x'' be *any* two abscissæ, and y', y'' the corresponding ordinates, and $m=x'':x'$, $n=y'':y'$, then the first four cases give simple relations between m and n—namely, first $m=n$, second $mn=1$, third, $m^2n=1$, fourth $n^2=m^3$, but the last equation furnishes *no* such simple relation. Now, the language of proportion should be confined to the first case $m=n$, and the language of variation can only extend to those cases in which there is such a simple relation; but the general Rule of Three embraces *all* the cases.

General Double Rule of Three.

In this case A corresponds to B and C, so that xA corresponds to

yB and C, or B and yC, and therefore A is unchanged when B and C are altered into zB and $\frac{1}{z}C$.

If then $y=fx$, we have—

$$A \text{ corresponds to } B \text{ and } C,$$
$$A' \quad \text{"} \quad B' \text{ and } C';$$
$$\text{or } (B':B) \,.\, B \text{ and } (C':C) \,.\, C, \text{ or } (B':B) \,.\, (C':C) \,.\, B \text{ and } C.$$

But if $A'=xA$, we have—

$$(A':A) \,.\, A \text{ or } A' \text{ corresponding to } f(A':A) \,.\, B \text{ and } C.$$

Hence, comparing the two expressions,—

$$(B':B) \,.\, (C':C)=f(A':A);$$

hence, if $y=x$, or $fx=x$,

$$(B':B) \,.\, (C':C)=A':A;$$

in which case the ratio of A' to A is said to be compounded of the ratios of B' to B and C' to C. This is, therefore, always the case when xA corresponds to xB and C, or B and xC, and hence all these cases belong to the Double Rule of Three. A is also said to vary as B and C conjointly, and B to vary, as A directly and C inversely.

A. J. Ellis.

[We must not be understood as adopting the views maintained in this article.—Ed. J. E.]

The Effect produced by Schiller's Tragedy of the Robbers on the scholars at the school of Fribourg is well known. They were so struck and captivated with the grandeur and character of its hero, Moor, that they agreed to form a band like his in the forests of Bohemia; had elected a young nobleman for their chief; and had pitched on a beautiful young lady for his Amelia, whom they were to carry off from her parents. To the accomplishment of this design they had bound themselves by the most solemn and tremendous oaths. But the conspiracy was discovered by an accident, and its execution prevented. Schiller afterwards acknowledged with great candour, and reprobated in the strongest terms, the pernicious tendency of his own production. The robberies committed daily in the streets during the representation of the "Beggar's Opera," were beyond the example of former times. Several thieves afterwards confessed, in Newgate, that they raised their courage in the playhouse by the songs of their hero, Macheath, before they sallied forth on their desperate nocturnal exploits. So notorious were the evil consequences of its frequent representation become, that in the year 1773 the Middlesex justices united with Sir John Fielding in requesting Mr. Garrick to suspend it, as they were of opinion it was never performed without adding to the number of real thieves.—*Essay on the German Theatre, by Mackenzie, and the Life of Gay, in the "Biographia Britannica."*

FEMALE EDUCATION.

THE VALUE OF EDUCATION.

IS education necessary in these days for all classes? We think there are few persons who will hesitate to reply in the affirmative; the amount and character of that education, in a secular point of view, depending, of course, on circumstances, station, sex, &c. Thus the education that is fitted for a physician would be unsuited to a mechanic; that of an artificer to a soldier or sailor; though still a certain amount of knowledge is requisite for all. This leads us to a second question—Why is education necessary?

We do not, of course, refer to religious instruction. The heart of every right-thinking man will at once tell him his actual need of such direction. Our question relates to general information.

Perhaps we shall be answered that no man can be a good politician, a good physician, a good mechanic, or a good workman, who has not made his occupation a matter of study. But this is only one aspect of the subject; the value of education would still be inestimable, independent of its use in such a point of view.

Perhaps it will be said that education is requisite because knowledge is power. This is also true; but power is not essential to our happiness or well-being, and therefore it is not on this account that we would value education so highly.

Or, its importance may be urged because it stores our minds with a multitude of facts, which are, or may be, useful in our intercourse with mankind. True again; but even this does not reach the root of the matter. In our eyes its real value consists rather in its internal than its external action; or the influence it produces upon our mind and character; on the strength it supplies to our reasoning faculties; and the liberality it gives us in our judgment of others. Bigotry and narrow-mindedness are the results of ignorance; humility and candour, of knowledge. Any new theory, whether true or false (and there are plenty of both kinds appearing every day in the world), is at first regarded with suspicion. In the well-educated, well-regulated mind this feeling is never permitted to become dominant. The arguments for or against the new theory are attentively weighed and studied, and on whichever side truth appears to preponderate will that man range himself whom education has made master of his reasoning faculties, and superior to prejudice, or to a feeling of humiliation in owning, "I was wrong." The ignorant man, on the contrary, knows not how to test reason with reason, and he will fall into one of two extremes—either he will blindly follow any new notion of the day, or will set himself obstinately to contest it—not by answering argument with argument, for of that he is incapable, but by supplying the place of the proper controversial weapons, of which he is deficient, by abuse and ridicule. The arsenal of his reason is empty, so he is forced to arm himself from that of his imagination; and a sorry figure does a warrior thus equipped present in the war of *words*.

A curious and somewhat appalling account of the effects resulting from

ignorance and bigotry is given us by Mr. Elphinstone, in his description of Afghanistan. Some of the Naikpeckheil, a clan of the Afghan mountaineers, found a mollah one day copying the Koran, and not well understanding what he was about, struck off his head, saying, "You tell us these books come from God, and here you are making them yourself." Now we are far from supposing that the natives of our more favoured regions would actually wish, even in the bitterness of theological and scientific discussion, to decapitate their opponent, as was the summary process with the enraged Afghans; but there are many who would not hesitate to murder that opponent's reputation by heaping upon him unmerited abuse, by applying to him motives which never existed, and by drawing from his arguments deductions which they do not fairly warrant. It is against such conduct as this that education, properly conducted, is our surest safeguard; and it is on this account, above all others, that we speak of its inestimable value—its value not to one class alone, but to all, because the natural tendency of all uncultivated minds is to work round and round in their own narrow circle, without being able to expand to a general appreciation of what is beautiful and true in creation.

This view of the case is undoubtedly very different to that which was formerly taken in the days of early chivalry, when even the simple arts of reading and writing were considered to be only fitted to the priestly office, and the warrior who could wield his sword would have blushed to have been found capable of using his pen with equal facility. But when these rude days were passed, the English government began to perceive the necessity of encouraging education amongst the people, and took a somewhat singular method of promoting its advancement; inasmuch as it declared that immunity from capital punishment should be granted to those criminals who could prove themselves able to read. Hence arose the term "a neck verse," referring to the verse of the Bible which a prisoner read at the foot of the gallows, to prove that he possessed the amount of education necessary to save his neck. That this privilege was often abused by the unhappy criminal having prompters by his side, who enabled him to appear to read characters of which he was in reality totally ignorant, is undeniable. That it must frequently have given rise to many ludicrous mistakes is evident; still the intention of Government in so acting was plain. Our rulers felt even then the necessity of combating ignorance by knowledge, and of raising the intellectual life of man from the low standard at which it had placed itself to one of a higher elevation. This mental revolution, however, was not one that could be accomplished in a day, or even in a century. It has been a slowly-progressive movement, ever onward, and which, as it took its rise at a period long anterior to our birth, so may it continue ever widening, ever expanding, when we, the actors of an hour, are mouldering to dust.

We now come to a third point of consideration, and one of a somewhat delicate character—we mean the education of woman. That her mind is capable of benefiting by the effects of education, such as we have here described them, few probably will doubt; that without its genial influence she may become even more narrow-minded and bigoted than the opposite sex, she will herself acknowledge; and yet there has been, and still in a certain measure exists, on one side a disinclination to

admit her to an equal share of intellectual advancement, and on the other an idle distaste to the labour requisite. She is too often satisfied with the acquisition of elegant accomplishments, and the lighter flowers of literature, which, lying in her path, may be gathered without fatigue. She is afraid, too, of being supposed to step out of her natural position; and thus, though perchance feeling the emptiness of her present mental occupations, she hesitates to engage herself in others more suited to her real taste.

Let us inquire into the cause of all this (and as belonging to her sex, we would do so with the deepest earnestness), and then look for the remedy.

Woman's position in society is somewhat different to man's. It is of a more domestic character; and anything that leads her to neglect the duties of that station is injurious, because it induces her, for personal gratification, to omit the exercise of actual practical duties. It is probably on this account, more than any other, that her advance to the higher branches of education has been looked upon with mistrust and suspicion; and she alone by her conduct can prove that this mistrust and suspicion are unfounded. She must ever keep in mind that the education alone worthy of that name does not merely consist in the cultivation of the intellect, but in that of the heart also; that if she looks only to mental improvement, she is devoting herself to a part and not the whole, and by forgetting moral culture is laying herself open to those charges of whose injustice she complains. Let the heart and brain advance hand in hand, and in nine cases out of ten her approach to the threshold of science will be received with a hearty welcome by those who have already arrived within its sacred precincts.

A course of mental and moral training, such as that to which we have here referred, must be the labour of years, or rather we should say of a life; for education of this character is a continued progression, but from its vast importance is well worthy of our consideration. For the sake of convenience, we will divide it under two heads,—intellectual culture and moral culture. To these two in detail we would direct our attention in a subsequent paper, but before thus entering on individual points would gladly say a few words more on the subject taken as a whole. Some women fall into the mistake of supposing that education is a thing only referable to childhood, and that when they leave the schoolroom, all studious labour may be at an end. This is a terrible mistake. The teacher's office in their education may indeed be accomplished at this period, but their own has but just begun; and that second phase of education is at least equally important with the first. The instructor's aim was not merely to ground them in the rudiments of useful knowledge, but so to train their minds that they may apply practically what they have learned theoretically, and to stimulate them to go on in the acquisition of further knowledge. Now, if we do not at this important period of our lives continue to exert ourselves, but waste our time in frivolous idleness, our faculties become less capable of action; and if in future years we are suddenly placed in circumstances that require their active exercise, we find ourselves lost and bewildered. The faculties may *indeed exist*, but we know not how to employ them, being like a workman who for many years has laid aside the use of certain tools, and when

he returns to them again is surprised to find how much he has lost of his former dexterity in their exercise.

This, however, is not the only evil to be dreaded from such a course. If the reason is not strengthened and supported by continual use, it will lose its rightful predominance over the other faculties. Imagination or sense will become our masters instead of our servants; and the evil effects arising from this are sufficiently obvious, because it overturns the proper balance of the mind.

A most painful and humiliating example of this is recorded in the history of those manias which from time to time have passed over the world like epidemics. We refer to the mewing mania, first commenced by an unhappy nun in her convent, who, from madness or some other cause, became possessed with the perpetual desire of mewing like a cat. Incomprehensible as it seems now, it is on authentic record that this mewing mania spread like wild-fire, from nun to nun, from convent to convent, over a considerable part of the Continent, and was at length only repressed by a royal edict, to the effect that any nun who should persist in the habit of mewing should be put to death.

We are not here going to question the power which a popular delusion of any kind has always possessed over the masses of the people. The dancing mania in Scotland and elsewhere, the jerking mania in America, and, alas! too many others, would preclude the possibility of our so doing; but there are two circumstances in the one under our consideration which make it peculiarly applicable to our subject. It existed in convents, but did not spread over general society, and it was arrested by the fear of punishment.

Now, we cannot suppose that all the sisters of those convents were originally of a more ignorant character than the females who still mixed in the outer world; but it is the nature of convent life, by its daily routine of form and ceremony, and its peculiar monotony, to stagnate the intellectual faculties. The reasoning powers of these nuns had no legitimate exercise, and were out of use. When, therefore, the imagination became morbidly diseased, the neglected reason failed to exert its proper corrective influence; while, on the contrary, women enjoying intercourse with their fellow-creatures were constantly placed in circumstances that forced them, in a greater or less degree, to use their powers of thought and reason; and this acted as a safeguard against their imagination carrying them away with the prevailing mania. That the unhappy nuns were not devoid of reasoning powers, but that they were only in abeyance, is evident by the second fact to which we called attention; namely, that a sufficiently strong stimulus brought it back to action, that stimulus being the fear of death. Reason told them, that if they persisted in their madness, loss of life would be the consequence; and they now felt it necessary to restrain what they had hitherto considered unrestrainable. Had these wretched creatures preserved, by regular exercise, their own power over their faculties, this degrading exhibition of human weakness might never have occurred.

Perhaps it will be said, I know that this kind of education ought to be continually going on, but I have no one to help or direct me in the right path. This, truly, is often a great difficulty, both in a religious and intellectual point of view; yet, where there is an earnest desire *after truth and knowledge*, it will generally overcome all such obstacles.

To do this, however, properly, we must first overcome ourselves, and become our *own* masters. A few general rules may perhaps assist us in doing this.

Let us not attempt anything of which we do not see a rational prospect of our ability to accomplish. Many a man, and woman too, spend their lives in projecting wild schemes of a Utopian character; and at length find themselves on their death-beds without having accomplished one solid reality. The individual who *actually* goes a hundred yards out of her way to assist a blind neighbour, has done more good in her generation than one who has spent her life in dreaming of riches that she might devote them to the erection of hospitals and asylums.

Whatever we do attempt, let us not be easily diverted from its pursuit by the difficulties we meet with on the road; but, as the old fable tells us, set our shoulders resolutely to the wheel, and we shall generally succeed. Let us be of a teachable disposition; willing to learn from the humblest as well as the highest; and then we shall indeed find sermons in stones, and good in everything. We may often learn a lesson worth treasuring all the days of our life from a little child, if we are not too proud to receive it.

Lastly, let us never forget the value of time. We often complain of the shortness of life, yet how seldom do we profit to the utmost of the time which is allowed us. How much more might be done by steady perseverance, even in a short life, than is usually accomplished in the longest period to which our existence generally extends.

One further argument we would urge before we close this paper, for the careful education of a woman's mind. To her the early instruction of both sexes is usually committed; and a mother's training will often remain indelibly fixed on the hearts of her children, even to the latest hour of their existence. "Train up a child in the way it should go, and when he is old he will not depart from it," are the words of inspiration, and history affords us innumerable examples of the value of this early instruction. Few, perhaps, are however more striking than that related by Turner, in his History of the Anglo-Saxons, of our own Alfred the Great.

Judith, the stepmother of that monarch, was sitting one day, surrounded by her family, with a manuscript of Saxon poetry in her hands. With a happy judgment she proposed it as a gift to him who would the soonest learn to read it. The elder princes, one then a king, the others in mature youth or manhood, thought the reward inadequate to the task, and were silent. "But the mind of Alfred," who was then twelve years of age, "captivated by the prospect of information, and pleased with the beautiful decoration of the first letter of the writing, inquired if she actually intended to give it to such of her children as would the soonest learn to understand and repeat it. His mother repeating the promise, with a smile of joy at the question, he took the book, found out an instructor, and learned to read it. When his industry had crowned his wishes with success, he recited it to her. To this important, though seemingly trivial incident, we owe all the intellectual cultivation and all the literary works of Alfred, and all the benefit which by these he *imparted to* his countrymen." For the momentous benefit thus begun *to Alfred,* the memory of Judith, granddaughter of Charlemagne,

deserves our gratitude and highest respect. Had she been uneducated, Alfred would, like his brothers, have lived and died uneducated also. How important then is the office thus devolved upon woman; how careful should she be in its execution; and how impossible is it that she should guide and instruct others properly if she has not first learned how to guide and instruct herself! C.

(To be continued.)

PHYSICAL EDUCATION OF GIRLS.—"Not only is the general opinion concerning what constitutes the height of female beauty in many respects quite erroneous, but it follows as a special consequence that the period of life in which the sex is thought to attain its greatest charm is that of pliant girlhood, when mind and limbs are alike soft and undeveloped, although the mature beauty of real womanhood, when the mind has control over every motion, and the face is susceptible of various and complex expression, is much more admirable. In Mary Wolstonecroft's 'Vindication of the Rights of Woman (an old and much-abused book, which will be found, on perusal, to recommend many changes which, since her day, have been universally adopted, and which have been made through the direct influence of Christian principle itself) are some excellent remarks on cultivated beauty, on the grace which only a thoughtful spirit can bestow, and on the cruel, injudicious waste of curtailing the period of growth and girlish liberty, by making the innocent loveliness just emerged from childhood the supposed crown and completion of the whole creature. The higher the organisation, the longer time it takes to mature; yet the early development secured to women by the present system of education is, oddly enough, a source of pride. It is supposed to be a sort of set-off against masculine superiority in other ways; and want of womanliness is a constant reproach to the intractable child who will persist in boisterous play after the age when she 'ought to behave like a rational creature.' Alas! how much, to secure this early development, are the natural healthy powers of girls stunted and distorted! It should rather be the aim of all possessing influence over the education of women to retain the childish habits of active amusement as long as possible, and lay the firmest attainable basis of health by encouraging growth of bodily strength up to the highest point. Most people endeavour to check the physical power of their daughters as much as that of their minds. It is well to notice the peculiar physical ideal of womanhood presented to the public eye in the works of that school of painters now rapidly on the ascendant in England. The Pre-Raphaelites, whether influenced by special models who have sat to them for their pictures, or by some abstract notion of what is admirable, certainly clothe their female characters with very skinny and ill-expanded corporeal frames: the lungs of these ladies must sadly want free play; and though their faces are full of thoughtful and refined expression, and the higher attributes of beauty are never sacrificed to the lower, they display a general tendency to attenuation not compatible with the vigorous performance of even strictly domestic duties. A far truer example of the loftiest beauty is to be met with in the statuesque proportions of the great queen of the musical drama now retiring from amongst us. In Giulia Grisi, whose figure is indelibly associated with the grandest embodiments of intellectual energy, we find a realization of the physical type of womanhood; a beauty more enchanting in its matured dignity than could ever be that of girlhood; attitudes and gestures suggestive only of refining and ennobling thoughts. In taking her as an example, the allusion is strictly confined to her as seen on the stage, as the only one familiar to the nation generally, and specially to those circles to which this pamphlet has the greatest chance of access. But Grisi, although greatly gifted by nature, has, in the pursuit of her profession, aimed at developing, and retaining into middle life, that perfect command of her own bodily manifestations which constitutes real grace. She has aimed at securing the mien suitable to impersonations of high-born and famous women,—not drawing-room elegance, but that beauty which, in various moods and circumstances, under the influence of strong passions, of love, of fear, and of sorrow, alike thrills and sways the universal heart. Yet this actress is simpler, graver, less artificial in her gestures and demeanour, than most ladies in private life."—From *Miss Parke's excellent Remarks on the Education of Girls.*

METHOD OF TEACHING SINGING IN SCHOOLS.

GENERAL PRINCIPLES OF A RATIONAL METHOD.—*Continued.*

VIII. MELODY should be taught by means of harmony.

The reason for this principle is, that melody has its origin in harmony. This proposition is true of all melody; but we will confine our observations to melody of the simple kind appropriate to children—that is, such as is derived from the major diatonic scale.

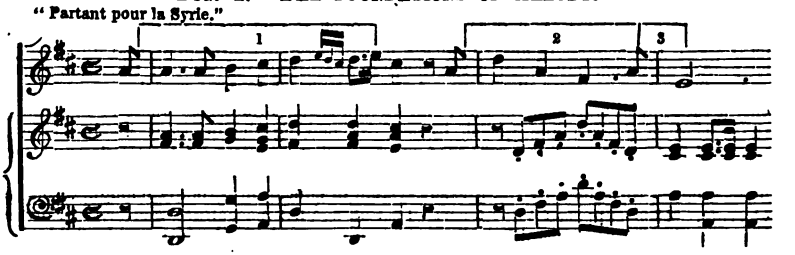
If we examine melody of this description, we shall find that it consists of three elementary successions of sounds, namely:—

1. Successions occurring in the scale.
2. Successions included in a chord.
3. Successions arising from the progression of chords.*

All three successions are exemplified in the following passage (Fig. 1):—

FIG. 1.—THE FOUNDATIONS OF MELODY.

"Partant pour la Syrie."



The portion of the passage marked 1 is a succession of the first kind; that marked 2 is a succession of the second kind; and that marked 3 is a succession of the third kind.

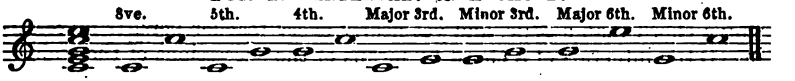
1. We have already shown that the scale is developed from harmony, and that it should be learnt according to that development. Having been acquired in this manner, it may be employed as a foundation for the singing of the diatonic successions derived from it. To this end, its sounds should be practised, not only in their regular order of ascent and descent, but in all the various sequences in which the teacher can arrange them, still preserving their diatonic succession. The teacher should write such exercises on a music-board, with which we expect every teacher of singing to be furnished. He should give them, not in one scale only, but in all the most usual scales, taking care to vary them in each scale so as to suit the compass of his pupils' voices. Every set of exercises in the same scale should be preceded by the singing of that scale in the regular order; and each exercise should begin on one of the notes of the tonic chord, and end invariably on the tonic itself, in order that a complete impression may be left on the minds of the pupils. All the notes should be of equal duration, as we have not now to concern ourselves with rhythm; but the speed should be gradually quickened, as the progress of the pupils permits, in order to increase the flexibility of their voices. Some excellent exercises of the kind proposed will be found in Messrs. Turle and Taylor's "Singing-Book," at pages 11 to 14.

---

* *The first* and second successions are noticed by Dr. Marx in his "General *Musical Instruction,*" but not the third.

2. The pleasing effect of a succession of sounds, like that of a combination, arises primarily from our perception of definite relations between the several sounds; and, as all the most nearly related sounds which can be formed upon any given root or prime are included in the common chord upon that root, hence the sounds of a chord come to be a very common foundation for melodic successions. Successions derived from this source abound in music; scarcely any melody will be found without them. In their original or primary position, the sounds of a chord form a melodious succession, whether sung in ascending or descending order; and the number of transpositions of which they admit, especially when they are extended beyond the range of a single octave, is obviously great. The intervals which are included in any one common chord thus extended, and which are called the consonant intervals, are the octave, the fifth, the fourth, the major and minor third, and the major and minor sixth. This may be seen from the following illustration (Fig. 2):—

FIG. 2.—INTERVALS IN A CHORD.



It is obvious, then, that these intervals should be practised as parts of the chords to which they belong, and not as parts of sequences comprising all the intervals of the same name in the scale. Yet the latter plan is the one adopted by all the books of instruction with which we are acquainted, except that of M. J. Rudolf Weber.

In a sequence of thirds, intervals that belong to the same chord are separated by the intervention of others belonging to different chords; thus the intervals do—mi and mi—sol are separated by re—fa, re—fa and fa—la by mi—sol, mi—sol and sol—si by fa—la, and so on (Fig. 3):—

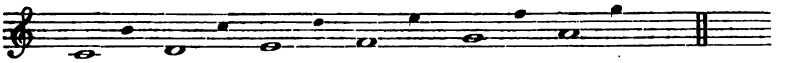
FIG. 3.—SEQUENCE OF THIRDS.

Worse than that, a sequence of fifths violates the one best established rule of musical composition, for it produces a parallelism of consecutive fifths, or of two different scales, as may be seen in the following illustration (Fig. 4):—

FIG. 4.—SEQUENCE OF FIFTHS.

And the sequence of sevenths is yet more barbarous, for it produces a parallelism of positive dissonances (Fig. 5):—

FIG. 5.—SEQUENCE OF SEVENTHS.



In both cases the parallelism is the more apparent the more rapidly the intervals are sung; and, therefore, the better the pupils can perform the exercises, the worse it is for themselves and for everybody else within *hearing*.

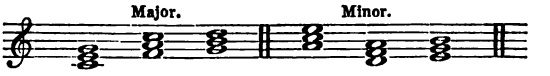
Nor is it necessary, on the plan which we propose, that the consonant intervals should be thrummed out by running up or down the intervening degrees of the vocal ladder. On the contrary, we have shown that the diatonic steps should be taught by means of the chord notes. The latter are more closely related to one another than they are to the intervening sounds, the introduction of which, therefore, can only have the effect of obscuring the perception of that more intimate relationship.

Those persons who teach consonant intervals by dissonant ones would seem to have a very inadequate confidence in the construction of other persons' ears. They seem to regard the human ear (in others, of course) and music as two heterogeneous things, which, by their management, have to be brought to tolerate each other; and really, with the kind of music to which they too often treat their pupils, this is no very incorrect view of the case. But would it not be better to bear in mind that there is an exquisite adaptation between musical sounds and the human ear, or rather the human soul, and to count upon that adaptation in our instruction? Every teacher of music knows that it is easier to sing a chord than a scale, and yet nearly every teacher persists in teaching (?) the intervals of a chord by means of the successions of the scale.

We propose the following plan for teaching chord successions:—

Every diatonic major scale contains six triads, half of the number being major and half minor, a symmetrical feature in the structure of the scale which does not appear to have been sufficiently noticed. Taking the natural scale, for the sake of simplicity, we have the following triads (Fig. 6):—

FIG. 6.—TRIADS IN THE MAJOR SCALE.

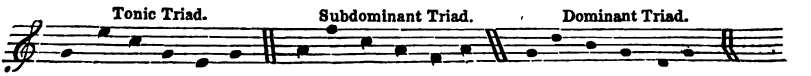


It will be observed that each set of triads includes all the sounds of the scale; but how different is the disposition of those sounds in the two cases—how distinct the effects produced in each—and how great the variety which is thus introduced into the system! Much of the effectiveness of musical composition arises from the skilful intermixture of these two kinds of triad.

The major triads are the more simple, natural, and easy. They have already been practised to some extent, as the foundation of the scale; and so far a preparation will have been made for the more extended practice which must now be undertaken.

At first, each triad should be taken separately. The intervals included in it should be practised, first individually, and then in combination, in successions formed out of its sounds. Such successions the teacher may construct for himself, and write off hand on the music-board. They should be as varied as possible, and for this reason they must not be restricted to the limits of the octave. We subjoin one example in each triad (Fig. 7):—

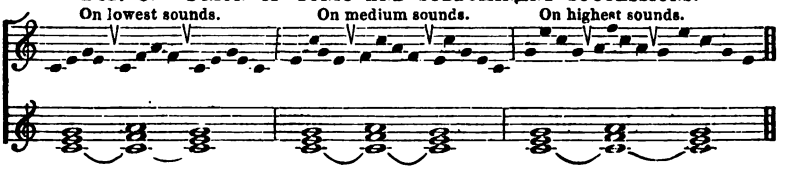
FIG. 7.—SUCCESSIONS IN THE THREE MAJOR TRIADS.



When a few such exercises have been practised, the successions in the subdominant and dominant triads should then be severally united to the successions in the tonic triad, in the same manner as the triads themselves were united in our exposition of the harmonic development of the scale, under the foregoing principle. We shall thus obtain more extended successions.

The union of subdominant with tonic successions will give us melodic phrases like the following, according to the degrees in the triads on which we found the successions (Fig. 8):—

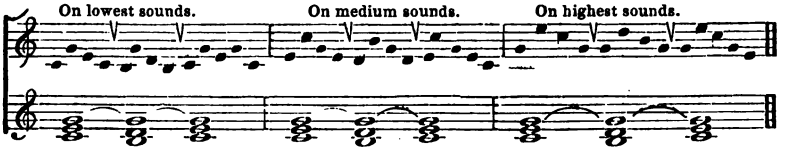
FIG. 8.—UNION OF TONIC AND SUBDOMINANT SUCCESSIONS.



We have placed under each succession the triad from which it springs. It will facilitate the singing of the passages, if the harmonic progression be heard at the same time. The class may be divided into four divisions, one to sing the melody, while the other three sustain the triads. The change from one triad to another may be made at a signal from the hand of the teacher.

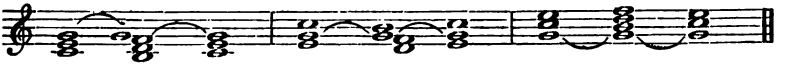
Similarly, the union of dominant with tonic successions will give passages like the following (Fig. 9):—

FIG. 9.—UNION OF TONIC AND DOMINANT SUCCESSIONS.



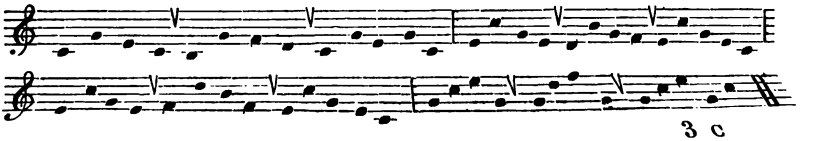
At this stage, the teacher should explain to his pupils that to the third and fifth on the dominant the seventh (fa) may be added, whereby what is called the chord of the dominant seventh is produced. The progression of the tonic and dominant harmonies, and the melodic successions arising therefrom, should then be practised over again with this more extended form of the latter harmony. The progression of the chords in the three positions will be as follows (Fig. 10):—

FIG. 10.—PROGRESSION OF CHORDS OF TONIC AND SEVENTH.



And the melodic successions arising from that progression will be such as these (Fig. 11):—

FIG. 11.—SUCCESSIONS IN CHORDS OF TONIC AND SEVENTH.



In these two melodic progressions, which we may call the sub-dominant and dominant progressions, we have the materials of a very large quantity of simple melody.

The sub-dominant progression cannot singly form the basis of a complete melody.

It is obvious that a piece of music, to have a complete effect, must give a decided impression of *one* key. Now, next to those of the fundamental or tonic chord, the sounds which are most characteristic of any one key are clearly the two which, with the first and second sounds of that chord, form the two semitones; for it is the position of these which distinguishes one major key from another. These sounds are, in any key, the seventh and the fourth (Si and Fa). The seventh is the more distinctive of the two, because it fixes the leading semitone, which is, of course, that of the principal or key-note. Hence it is, that the seventh of the scale is called by the French the "ton sensible," and by us the leading note."* It is indispensable, according to our modern ideas,† that this sound should be heard in any musical composition, however short, if not in the melody, at least in the harmony. Therefore, a complete composition cannot be formed from the sub-dominant progression, which does not include the seventh.

But the dominant progression *does* include the seventh, and accordingly it may of itself form the foundation of a musical composition; and the effect of such a composition is rendered fully complete and satisfactory when the chord of the dominant is employed in its extended shape, for then both the characteristic notes are present, the fourth sound of the scale being the one that forms the minor seventh on the dominant.

Compositions of this kind are the most simple and easy that exist in music, and they are therefore the first that should be practised by beginners in the art. That this is the natural course to pursue in teaching music, is further evidenced by the fact that it is precisely little ditties belonging to this class that are most readily caught up by the popular ear, and become most widely known. Each of the three national airs which we subjoin springs solely out of the harmonic movement in question by the melodic dispersion of the sounds of the two chords, and the introduction of passing notes connecting these sounds into scale passages. This common feature in their structure; their accidental correspondence in form of measure, length of phrase, and arrangement and number of phrases; and the further accidental and curious circumstance, that they are respectively founded for the most part on the three levels in the two chords (lowest, middle, and uppermost)—these several circumstances combined cause the three melodies to admit of being sung together by three different registers of voice, and to produce full harmony when so sung. We copy the idea, and the exact form of the melodies, which have undergone a few necessary alterations, from the first number of "Davidson's Handbook of Part-Music for Singing-

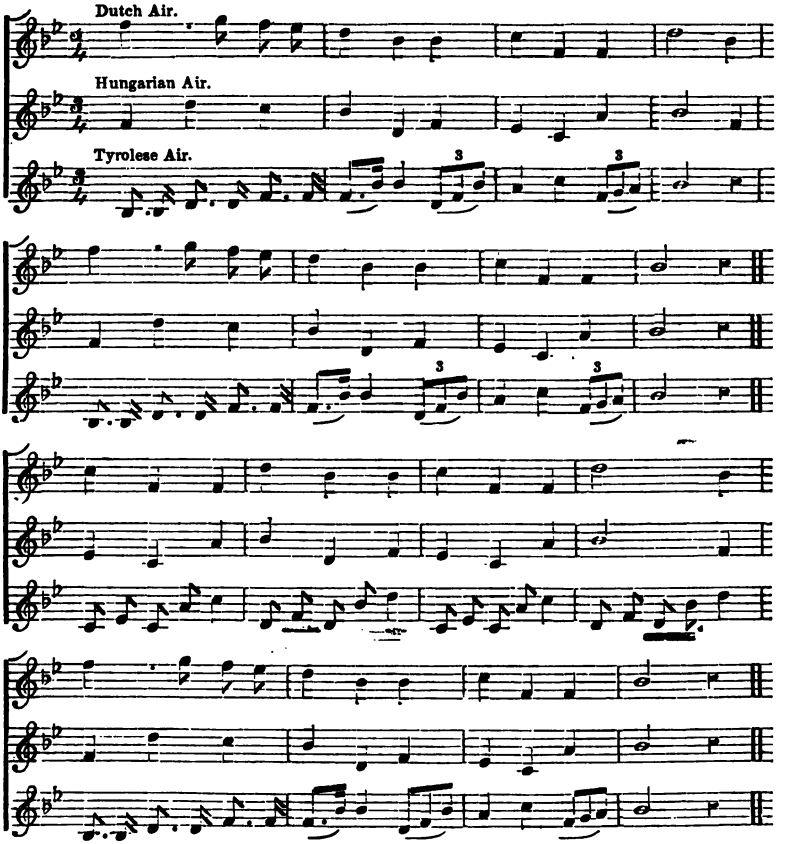
---

* The explanation, so often given by teachers of singing, that the seventh is called the leading-note because it appears to lead into the key-note, is nonsense.

† The Scotch Highlanders appear to have done without the seventh of the key in *former times;* but then these "braw Hielandmen" have managed to do without *many things* which we consider indispensable.

Classes, Schools, and Families,"* in which they will be found, accompanied by suitable words, written by R. Crowe, Esq., Professor of Music in the Liverpool Collegiate Institution, with whom this clever idea appears to have originated (Fig. 12) :—

FIG. 12.—THREE MELODIES FORMED FROM TWO CHORDS.



The union of the subdominant with the dominant progression gives rise to compositions one degree more complex, and therefore one degree more difficult, than the last. These compositions form a still larger class, including, besides waltzes and other easy dance-tunes, with which we have at present nothing to do, a considerable number of popular airs. Among these we may perhaps be allowed to mention the Scotch songs, "Auld Lang Syne," "Bonnie Dundee," "Bonnie Prince Charlie," "Ye Banks and Braes," "Annie Laurie," "March, march over the Border," and "The Boatie rows;" the Irish air, "My lodging is on the cold ground;" the Negro melodies, "Carry me back to Old Virginny," "Lucy Neal," "Uncle Ned," "Buffalo Gals," "Sing, sing, ye Darkies,

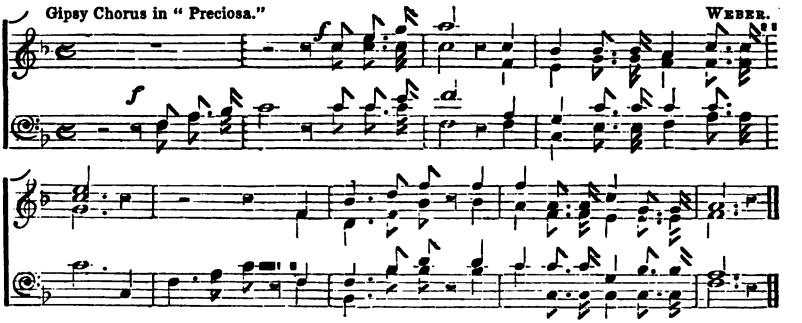
* *London: G. H. Davidson*, Peter's Hill, Doctors' Commons, price 6d.

sing," and "The Old Folks at Home;" "Home! sweet Home!" "Life let us cherish," and "Weel may the Keel row."

There are scarcely any sacred tunes belonging to this class. We only remember two at the present moment, namely, those set to the words, "There is a happy land,"* and "I think when I read that sweet story of old," the one an Indian and the other a Greek air. For the due expression of the solemn thoughts and varied emotions which the contemplation of sacred subjects calls forth, the presence of the plaintive element of the key, supplied by the minor chords, seems to be almost indispensable.

We have not cited the secular tunes above as recommending them for the practice of children, but only to illustrate a principle. Tunes of a similar construction, specially arranged for children's voices, and with words suited to their feelings and capacity, may be found dispersed among others in the various collections of school music, and the teacher must proceed upon the eclectic method in regard to the music for practice, as well as the communication of the instruction. We subjoin the Gipsy Chorus, from Weber's opera "Preciosa," as the most effective piece of music constructed with the three major chords which we have ever heard (Fig. 13):—

FIG. 13.—CHORUS FORMED FROM THREE CHORDS.



It will be found, arranged in three parts, with words suited to children, in the writer's "Collection of Secular Music for the Use of Schools."

We must leave the treatment of the minor chords to our next article. We may safely say that we have completed the development of the major part of our present subject, and our monthly task is about fulfilled. But we think the reader, if he is doing us the honour to follow out our hints in his school, will have enough to work upon for a month, especially if it be holiday time with him. In any case, we are sure of his indulgence for breaking off thus abruptly; for, in the words of the great Luther, "There is no doubt that the seed of every virtue is to be found in the minds of those who feel music: whoever cultivates and understands this science, is of the right sort, and is capable of every good action."

J. TILLEARD.

(To be continued.)

* We do not mean as *mis*harmonised by Mr. Hogarth.

Notes of New Books.

Suggestions for an Improved Theory of the Tides. By Lieutenant Hopkins, R.N. Pp. 44. Hall: London.

The theory of the tides has long been deemed eminently unsatisfactory, and science is greatly indebted to Lieutenant Hopkins for boldly entering the lists against the ancient dogma. He has suffered the usual fate of men presumptuous enough to question the dicta of *savans*. But it is sufficiently notorious that old theories are blindly copied from one book into another, and that unless all investigation is to be deemed to have been complete and perfect in the days of Newton, it is permissible for mind in the nineteenth century to scrutinise the dicta of preceding ages, in order to those advances which are being made in all other branches of knowledge. We do not indorse Lieutenant Hopkins's views, but they are at least more accordant with common sense than those he seeks to replace, and deserve most attentive consideration.

Lieutenant Hopkins thus states his objections to the Newtonian theory:—

"My first objection to the Newtonian theory, as it stands, is, that it does not account for any current. All tidal phenomena are the result of currents. The mere lifting of the waters by the attraction either of the sun or moon, as different portions of the ocean's surface are presented to them, could produce no lateral horizontal motion. They would raise the waters into what is technically termed a protuberance; and, so long as the attractive force continued, those waters would be raised, more or less, above the common level. But there would be no wave—no horizontal progression—no onward rolling. There would be nothing, in fact, *except* a temporary protuberance, which would subside into equilibrium as soon as the disturbing force had passed away. This disturbance could only be termed tides in certain localities; as, for example, at islands in the midst of the ocean. Obstructed undulations there could not be, and consequently no current. Whence, then, the force which causes the tides in distant, inland seas, far removed from the ocean where these inequalities in the liquid circle are formed? Whence the force which drives the waters with such velocity upon continental western shores? Water moved by mere *pressure*, unless accompanied by some other agency, could not travel with a velocity equivalent to the result. Neither would there be pressure at the chops of the channel, to account for the rising of the waters at Dungeness; seeing, that at high water there, it is low water at the Land's End.

"My second objection is, that the dogma proposed attempts to explain the cause of high water on grounds at variance with the laws of nature. Any quantity of water, large or small, if undisturbed by surrounding forces, would settle into the form of a globule or drop; and any exterior force, whether attractive or repellent, which would affect this aqueous globe, must necessarily tend to elongate the mass. Consequently, 90 degrees from this centre of force would be the equatorial

circle, which must necessarily be flattened, or made oblong or oblate, as an elastic ball would be if it were to be drawn in one or opposite directions.

"Taking this view of the case, then, at the time when the moon is in its 22nd degree of south declination, the waters situated in high northern latitudes, say the 50th, 60th, or 70th degree, would, in consequence of this force, be lowered at the time of the moon's reaching the meridian.

"My third objection is, that this theory requires the tidal wave to travel from east to west; whereas, as will soon be more fully shown, it travels in reality from west to east."

Lieutenant Hopkins thus states the new theory he proposes :—

"It is in accordance with the law of gravity that all matter is disposed to range itself round one common centre, and that water should seek one common level round this centre. It is in accordance with the same law of gravitation that the earth, and more especially its liquid waters, should be also attracted by any foreign body in proportion to its weight and proximity. Thus a protuberance is raised on the waters under the sun or moon, which, though very small in comparison with the diameter of the earth, is nevertheless, sufficiently large to amount to a mean depth of (*probably*) from *eight* to *twelve* feet.

"It is in accordance with the law of orbital centrifugal force, that, on the opposite side of the earth to that on which the moon's attraction is exerted, another protuberance of equal dimensions should be raised.

"If we suppose a weight to be attached to a rotating wheel, and disengaged during the time when it is rapidly moving, it will, through the influence of centrifugal force, fly off at a tangent in the direction of the wheel's rotations. Thus, carriage-wheels in wet weather, when moving with rapidity, constantly throw forward the mud which they gather on their surface. The earth being such a rapidly rotating body, the natural effect of centrifugal force upon its liquid surface would be (when the waters are once raised into a protuberance or swell by any foreign attracting body), to propel that protuberance, with considerable velocity, in the direction of its own rotations. Thus, the protuberance thus affected becomes a force which, in its turn, acts by its pressure upon the waters lying to the east, and generates undulation in the direction of the earth's motion. These undulations dash upon obstructing shores with a force and velocity which no mere attraction could communicate; and the direction of the swell continues from west to east, as proved by Captain King, until, checked in its course, as regards the Atlantic by the western shores of Europe and Africa, and as regards the Pacific, by the western shores of America, the swell is converted into a current, progressing in the same line of force. Thus, the pressure communicated by rotatory force throws the protuberance forward to the east, instead of that protuberance following the course of the distant orbs, by whose attraction it was originally raised."

He proceeds to show how this theory accords with the law of gravitation, and all those phenomena with which the established doctrine is irreconcilable.

We hope his treatise will be largely purchased and read, the more so *because scholists* will assuredly try to stifle it.

Disciplina Rediviva. By the Rev. John Smith Gilderdale, M.A. Pp. 271. London: Bell & Daldy, 1856.

Our readers have already had the best possible means of judging of the merit of this very able volume, as the whole of it has already appeared in our columns. We rejoice that so great an aid to students has been preserved to them and their posterity in the elegant little volume before us.

Manual of Bible History. By Charles Baker. London: Varty, 1856.

Like all Mr. Baker's books this Manual deserves high praise. It epitomises historical scripture admirably. On the left-hand pages is the succinct narrative of each section of the Old Testament. On the right-hand pages, opposite to the text, are very lucid explanations of all obscure passages, accompanied by a list of contemporary characters, and questions for teachers to ask classes, all fully and clearly worked out. They, by the notes, elucidate phrases, idioms, facts, customs, doctrines, &c. We shall rejoice when a similar work is completed for the New Testament.

Summary Account of Prizes for "Common Things." Pp. 89. London: Hatchard, 1856.

This book gives the result of the highly benevolent experiment of Miss Burdett Coutts, for encouraging the teaching of Common Things by schoolmistresses, among those at Whitelands who have been examined; and the result is before us, in the papers they have written in reply to stated questions. The prizes given by Miss Coutts amounted to £50, and very creditable are the papers sent in.

We have always been of opinion that industrial training, of which Common Things are an essential part, has formed far too small a portion of the system pursued in common schools.

Mr. Cook, H.M. Inspector of Schools, differed from us, and expressed an opinion unfavourable to industrial training in his Report for 1852, though we are glad to see that he has now modified his view. The Managers of the Whitelands College are setting an excellent example by the encouragement they are giving to this branch of study, and we trust Miss Burdett Coutts, and others, will be induced to extend their useful and valuable aid to similar efforts.

The Educator's Instruments: Hints on Method, School Government, &c. By G. C. Drew, Master of the Model Training School, Homerton College. Part I. Introductory, Motives, Aims and Ends. Pp. 54. London: Judd & Glass, Gray's-Inn Road, and 21, Paternoster Row; the Depository, Homerton College, Homerton.

This promises to be be a valuable work when completed, and one that we should gladly see in the hands of all teachers. Its object is to prove that real education does not consist in merely communicating a number of facts, but in the moral and intellectual culture of the mind—"the development of the faculties;" the educator's work being not simply to instruct the child in necessary and useful knowledge, but to form the *future character of the man*. This being the goal at which he aims, the

training of the schoolroom, and the teaching of various branches of knowledge, even the rudimentary arts of reading, writing, &c., will be regarded by him less as his *object*, than as means or instruments for the accomplishment of a higher object. This view of the case explains the title Mr. Drew has chosen for his work, and which at a first glance appears somewhat inappropriate—"The Educator's Instruments."

The religious spirit that pervades the whole tone of Mr. Drew's writings is most pleasing, and he points out very forcibly the impossibility of intellectual education being carried on to advantage independent of religious instruction. He dwells also earnestly on the necessity of the teacher's loving his occupation; that it must be to him a labour of love, not of weariness; and that he must, to use a homely but expressive phrase, have his heart in his work.

The disadvantage of hurrying children to the higher branches of knowledge before they are well grounded in elementary subjects—of making that knowledge too discursive, and therefore more specious than real—of teaching them to learn by rote rather than by the exercise of their reason, are points on which he speaks with a truth that brings *his* convictions home to *ourselves*.

His suggestion, however, that the pupils should be made to aid in the formation and dispensing of the laws by which they are to be guided, is one to which we hesitate in at once giving our assent; though we cordially concur with him on the importance of making children do what is right, rather because wrong is an infringement of God's law, than the teacher's law. We trust he will enter more fully on this point in the subsequent parts of his work.

The subject of rewards is touched upon very slightly, but our author seems inclined to discountenance their use as instruments of education. Can this be fairly done without the abolition of punishment also? Is not God's government of man in this world to a certain degree a system of reward and punishment: evil being productive of sorrow; good, of happiness and peace!

On the whole, we look forward with great interest to the continuation of this work, which will, we have no doubt, fulfil the promise of its commencement.

Annals of England. Vol. II. Pp. 448. Oxford: Parker.

This volume continues the chronicles of our history from the house of Lancaster to the execution of Charles I. It will be completed in the next and third volume. It continues to be a carefully-digested tissue of facts and dates, enlivened with the costumes and armorial insignia of the different epochs.

An Introduction to Geology and Magnetism. By Evan Hopkins, Esq., C.E. and F.G.S. Third edition. London: Taylor & Francis.

Mr. Hopkins is an eminent writer on this subject, and we recommend his book cordially to all who desire to obtain a real knowledge of the subject; but it is too deep and scientific to fall within the province of *scholastic literature*. It is most ably written, and fully sustains the *high reputation* of the writer.

Intelligence.

UNITED ASSOCIATION OF SCHOOLMASTERS OF GREAT BRITAIN.

THE following donations have been received since the date of the last printed report :—

Mr. W. Hammond, Head Master of the Upper School, St. Thomas, Charterhouse	£1	1	0
John Turner, Esq., 2, North Bank, Regent's Park	1	0	0
Miss L. Hounsell, Lawbridgeworth, Herts	0	2	6
Mr. G. F. Varty, Tenterden National School	0	2	6
Mr. P. Brand, Priory National School, Great Yarmouth, Norfolk	0	5	0
Nemo	1	0	0

The proposal to pay off the debt of the Association by a combination of twelve or twenty of the members has not met with success.

The following are the new officers of the Kent and Sussex Schoolmasters' Association :—

President.—Mr. J. Wallis, British School, Deal.
Treasurer.—Mr. Roberts, British School, Dover.
Secretary.—Mr. T. Gortley, British School, Ashford, Kent.

The following teachers have recently joined the Association :—

Mr. T. Bodley, B.A. Vice-Principal, Training College, Highbury.
Mr. T. Dexter, Royal Military Asylum, Chelsea.
Mr. T. P. Dexter, St. Thomas's National School, Woolwich.
Mr. J. Diggens, Model School, Royal Military Asylum, Chelsea.
Mr. F. W. Dunn, Head Master of the Bengal Military Normal School, Sarrawur, near Kussowlie, North-West Provinces, India (per Mr. A. E. Dunn, Trowbridge).
Mr. J. Sundy, British School, Windsor.
Mr. C. E. Marks, National School, Onslow Street, London.
Mr. R. Marks, Trade School, Wandsworth.
Mr. T. St. Clair MacDougal, City of London School, Cheapside.
Mr. A. Morely, Children's Establishment, Limehouse.
Miss Poulter, Pentonville British School, Denmark Terrace.
Mr. A. E. Rieley, Corbridge National School, Gateshead.
Mr. Edwyn H. Rogers, Head Master of the Lawrence Military Asylum, Sarrawur, near Kussowlie, North-West Provinces, India (per Mr. John Rogers, No. 65, Moorgate Street, City, London).
Mr. J. M. Stewart, City of London School, Cheapside.
Miss S. Wade, St. Anne's National School, Limehouse.
Mr. W. F. Westwood, Hollingbourne House School, Norwood, Surrey.

Members who have not yet paid the subscription for the current year, are reminded that it became due on the first of January, and are requested to transmit the amount by money-order, at their earliest convenience, to the Corresponding Secretary.

J. TILLEARD, *Corresponding Secretary,*
17, *Scarsdale Terrace, Kensington.*

CIVIL SERVICE EXAMINATIONS.

THE following list of the subjects of examination for admission to each of the chief public offices will, we trust, be useful to several of our readers :—

INDIA BOARD.—(Candidates must be between 18 and 25 years of age.)—1. Writing.—2. Orthography.—3. English composition.—4. A sufficient capacity for analyzing and condensing into a small compass, a subject, the matter of which is spread through many documents.—5. Arithmetic.—6. Geography.

INLAND REVENUE.—(Candidates for Clerkships must be between 16 and 25 years of age; and surveyors of taxes, between 19 and 25 years of age.) *Offices of Receipt and Account; and Surveyors of Taxes.*—1. Good writing.—2. Writing from dictation.—3. Correspondence.—4. Arithmetic up to and including vulgar and decimal fractions.—5. Book-keeping by double entry.—6. Geography.—7. History of the British Empire.—8. Reading. *Clerks in Offices not of Receipt and Account.*—1. Proficiency in writing.—2. Writing from dictation.—3. Proficiency in correspondence.—4. Arithmetic to the fullest extent.—5. Geography thoroughly.—6. History good.—7. Latin (in the Solicitor's office only). The examination as regards history, geography, correspondence, and the other heads, would extend much further than is thought necessary in the cases of clerks in offices of account or receipt, and would be such as to ascertain whether or not the person had received such an education as would qualify him, after experience in the various business of the office, to be employed in duties of a superior description. In the office of the Solicitor some legal attainments are required; but the proficiency of the party in that respect would not be tested on his admission, but during the probation of three months. *Lieutenants of Revenue Police.*—(Candidates must be between 20 and 25 years of age.)—1. Fluent and correct writing.—2. Arithmetic, up to and including the four first rules of vulgar and decimal fractions. At the time of entering the service must be unmarried, and without family. *Expectants of Excise.*—(Candidates must not be under 19 years of age, and unmarried at the time of entering the service.)—1. Good writing.—2. Writing from dictation.—3. Arithmetic, including vulgar and decimal fractions.—4. Book-keeping by double entry.

JOINT STOCK COMPANIES REGISTRY.—The same as for "Supplementary Clerks" in the Board of Trade. (See No. 147 of the "Monthly Register.")

JUDGE ADVOCATE GENERAL'S OFFICE.—1. Good writing.—2. Accuracy in copying.—3. Must appear to have such an amount of capacity as will enable him in course of time to discharge higher duties in the office.

LAND REVENUE RECORD OFFICE.—Nothing yet fixed.

LORDS, HOUSE OF.—Nothing yet fixed.

LUNACY COMMISSION.—Nothing yet fixed.

METROPOLIS ROADS COMMISSION.—Nothing yet fixed.

METROPOLITAN BUILDINGS OFFICE.—Nothing yet fixed.

METROPOLITAN POLICE COURTS.—(Candidates must be between 19 and 25 years of age, unless the nominee shall be a certificated attorney of one of the Courts of Law at Westminster, or shall have acted for at least seven years next before his application for such office as clerk to the justices of any petty session).—1. Writing, rapid, clear, and legible.—2. Spelling and punctuation.—3. English grammar.—4. Arithmetic, the rules of addition, subtraction, multiplication, division, reduction, single rule of three, practice, simple interest, and vulgar fractions.—5. Modern geography.—6. English history.—7. Latin, German, French, Italian, or Spanish, *if the candidates require it;* but a knowledge of any of these is not to be considered as indispensably necessary.—8. Must read well. A candidate who shall be a certificated attorney or justice's clerk at petty sessions, shall, over and above the said qualifications, possess a tolerably sound knowledge of Criminal Law.

METROPOLITAN POLICE OFFICE.—(Candidates must not be under 17 years of age.)—1. Good and expeditious writing.—2. Writing from dictation, spelling, and punctuation.—3. English grammar.—4. Arithmetic, including vulgar and decimal fractions.—5. Book-keeping, elements of.—6. English geography.—7. History of the British Empire.—8. A competent knowledge of French is desirable. Before the junior clerks reach the post of chief clerk, they should further acquire some knowledge of the principles and practice of criminal law; otherwise this appointment would be better filled by the selection of a person who has qualified as a solicitor.

MINT.—Nothing yet fixed.

NATIONAL DEBT OFFICE.—(Candidates must be between 16 and 25 years of age.)—1. Writing easy and legible.—2. To copy in a correct manner from MS., or print, or MS. accounts.—3.—A complete master of arithmetic, up to and including vulgar and decimal fractions.—4. Geography, a fair knowledge of.—5.—History, a fair knowledge of. It is not really important that the candidate should be deeply read in history and geography, although, no doubt, such knowledge is very valuable, as a test of general education.

ORDNANCE OFFICE.—See "War Department," next month.

PATENTS OFFICE.—Nothing yet fixed.

PAYMASTER-GENERAL'S OFFICE.—(Candidates must be between 16 and 25 years of

age.)—1. Good writing.—2. Orthography.—3. Writing from dictation.—4. Précis, or abstract of official papers.—5. Arithmetic: practice, rule of three direct, rule of three inverse, rule of three double, fractions, vulgar and decimal, interest, purchase of stock, exchange, and facility of making long additions.—6. Book-keeping.—7. Reasonable proficiency in one dead or modern language (suggested). The examination will probably be carried to a little beyond what it is at present, for the purpose of testing the general intelligence and acquirements of the candidate.

POOR LAW BOARD.—(Candidates must be between 18 and 25 years of age.)—*Superior Clerks.*—1. A general familiarity with the rules of English composition.—2. Arithmetic, including vulgar and decimal fractions.—3. Some acquaintance with the general principles of law will be an undoubted recommendation to those who look for promotion in this branch of the public service.—4. Must have received a liberal education, and be personally intelligent, but the examination will depend upon the nature of the candidate's previous studies. *Supplementary Clerks.*—1. Writing. 2. Familiarity with the ordinary principles of English composition.—3. Arithmetic, the first rules.—4. General intelligence in deciphering what is given to copy.

(*To be continued.*)

REFORMATORY AND RAGGED SCHOOLS.

MINUTE OF THE COUNCIL ON EDUCATION.

"*Minute of the Committee of Council on Education, offering grants for the Promotion of Schools wherein Children of the Criminal and Abandoned Classes may be reformed by Industrial Training; dated 2nd of June,* 1856.

"At the Council Chamber, Whitehall, the 2nd day of June, 1856, by the Lords of the Committee on Education of her Majesty's Most Honourable Privy Council, their Lordships resolved to continue the grants at present made in aid of field-gardens and workshops annexed to common elementary day-schools, but as regards 'ragged or reformatory schools,' to cancel all existing minutes, and to provide as follows (no school being admissible to aid under this minute, unless it be industrial in its character, and unless the scholars be taken exclusively from the criminal or abandoned classes):—

"1. To pay half the rent.

"2. To pay one-third of the annual cost of tools and of raw materials for labour.

"3. To make grants towards the cost of books, maps, and apparatus, upon the same terms as to other schools.

"4. In order to encourage the preparation of suitable schoolmasters for employment in such institutions, to grant the sum of £35 to the treasurer of any reformatory school in respect of every person qualified as next undermentioned who shall have been boarded, lodged, and trained as a master in such reformatory school during a period of twelve months, viz.:—

"(*a*) All teachers of common elementary day-schools holding certificates of merit, or registered.

"(*b*) All teachers of workhouse schools holding certificates of efficiency.

"(*c*) All students in normal colleges under inspection, who shall have resided therein not less than one year, and shall have successfully passed the examination at the end of the year before her Majesty's Inspectors of Schools.

"Their Lordships also resolved to reimburse to the said treasurer any sum, not exceeding £6, which it may have been found necessary to advance for the purpose of travelling or personal expenses to such persons in training.

The condition of such grants to be—

"(*a*) That the reformatory contain at least forty inmates, and be sanctioned or certified by the Secretary of State, under the Acts 17 & 18 Vict., c. 74, and c. 86.

"(*b*) That her Majesty's Inspectors of Schools recommend the school, from year to year, as a suitable place, in its character and arrangements, for receiving masters into training for reformatory schools.

"(*c*) That payment of the grant be made by quarterly instalments; and that the same certificates of good conduct be required from the principal of the institution on behalf of each person in training as are now required in the case of Queen's scholars.

"5. To grant half of the salary agreed to be paid by the managers to every master, and to every master and to every assistant master in any ragged or reformatory school, in the following ratio :—

"For any number of inmates not exceeding 25, 1 master.

"Between 25 and 50, 1 master, 1 assistant.

"An additional assistant to be allowable for every 25 additional inmates above 50; and an additional master (instead of an assistant) for the first 25 inmates after every 100; these allowances giving 1 master and 3 assistants as the ordinary staff for every 100 inmates.

"Every master, if untrained, must be upwards of twenty-five years old, and every assistant upwards of eighteen years old. Industrial instructors may be counted as assistants.

"If the salary agreed by the managers to be paid to an assistant exceed half of that of a master in the same school, the excess will not be reckoned in calculating the sum to be reimbursed by the Committee of Council on Education.

"Her Majesty's Inspectors of Schools must report favourably in each year for which the grant is paid, with especial reference to the following points :—

"(*a.*) That the ability and character of the master and assistants are satisfactory.

"(*b.*) That habits of obedience, cleanliness, and order are enforced in the school.

"6. To grant, as capitation, upon every child (according to the number in average attendance during the year preceding the annual inspection) who is not paid for by the Lords Commissioners of the Treasury, under the Act 17 and 18 Victoria, c. 86, the sum of 50s. per annum, provided that such child be fed at the school."

THE Inspection of the Reformatory and Ragged Schools is to devolve on H.M.'s Inspectors of Union Schools.

THE Bill has passed for appointing a Vice-President of Education. The salary is £2,000 per annum, and it is not improbable that it will, as we originally suggested, be accepted by Lord John Russell.

Notices.

REDUCED CHARGE FOR ADVERTISEMENTS.

Orders and Advertisements must be sent ONLY *to* MESSRS. GROOMBRIDGE, *5, Paternoster Row; the latter, from strangers, must be accompanied by a remittance, according to the following scale :—If under* 40 *words,* 3*s.* 6*d.; for every additional ten words,* 6*d.; a whole page,* £2. 2*s.; a half-page, or one column,* £1. 5*s. Ten per cent. discount on all Advertisements inserted more than twice.*

The JOURNAL *will be sent, free of postage, for one year, on receipt of* 6*s.* 6*d. in advance.*

TO CORRESPONDENTS.

"T. Jones."—We are obliged to decline parsing sentences. It is not useful to our readers.

A RATIONAL METHOD OF TEACHING FRACTIONS.

BY CHARLES DACUS HERMANN.

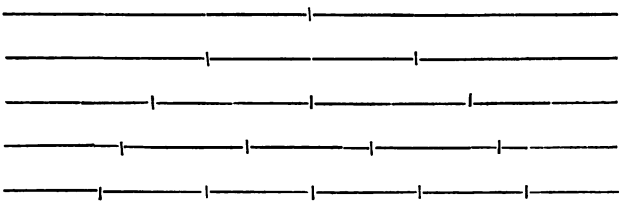
THIS system is founded upon the principles established in Germany towards the end of last century, chiefly by Pestalozzi and his followers, and progressively introduced for all objects of instruction and handbooks referring thereto. But as there is, in this country, an absolute want of similar guides for teachers, it appears that the said principles, although universally acknowledged in many countries, and continually extending their influence, are not yet in England, amongst persons concerned or actually engaged in instruction, as generally known or appreciated as they deserve, for being so simple and evidently conformable to a natural development of the mind. I have now had, for several years, many opportunities, in schools as well as in private families, to observe the mere mechanical way in which Arithmetic, as well as many other sciences, is usually treated; but as Mathematics were not the particular department in which I was engaged, I had no occasion to try a more natural method; and persons interested in a showy progress of the pupils generally objected to the risk of deviating from routine. Since I established independently, I became more interested in the general and real proficiency of my pupils, and again perceiving that all their skill and knowledge in Arithmetic rested on some given rules kept in memory, mechanically applied with little reasoning, and generally without a perception of their necessary correctness, I resolved to try, in one branch of common Arithmetic at least, the more rational way in which I had been taught myself, and which I afterwards, in another country, had successfully followed with my pupils. The chief points of the method here alluded to, which guided me in my lessons, are:—Always start from something already known, visible or evident; induce the pupil by suitable questions to find out for himself the truth or rule you want him to learn; frequently make use of illustrations to assist his exertions to this effect; never suffer your pupil to rely on a rule learnt by heart without being able to prove the correctness of the rule in each particular case, and going back to its last reason; always engage him to express his ideas clearly and properly. The difference between doing sums by mechanical rules only, and reasoning about them according to our system, will best appear from an example. If we have, for instance, to multiply two fractions together, instead of giving the mechanical rule, "Multiply the numerators together and then the denominators,"—a rule which is indeed easily applied, but if, perchance, lost out of memory, is gone for good,—we want our pupil successively to understand the following separate considerations about such a problem:—To multiply by a fraction really means a division; and if the numerator be greater than one, a division and multiplication combined; we divide a fraction by making its parts smaller, or multiplying the denominator; we multiply a fraction by increasing the number of the parts, or multiplying the numerator—which reasonings not only show how to operate, but also to bring us to a conviction that we are right in doing so. Our pupil may have *done* such sums before he ever heard of the above rule

framed into the exact words; he may afterwards forget the rule, but will be able, from his knowledge of the nature of fractions, with a little ingenuity to find his way in each particular case, and eventually come again to the rule by continued practice. Arithmetic treated in this manner will prove a most natural and powerful means of accustoming a pupil to think and reason soundly and logically, and to express his ideas in a distinct and proper manner. The result of my endeavours in this matter was most satisfactory, not only to myself, but to my pupils and all those concerned in their instruction; and it is for this reason that my friends induced me to write this little treatise; which is presented to public notice for the first time in the columns of this Journal.

I. *Definition of a Fraction and its two terms.*

WRITING A FRACTION.

The master having drawn several lines on a black board or paper, and having divided them respectively into 2, 3, 4, &c. equal parts, begins:—



M. Into how many equal parts have I divided the first line?—the second? &c. Show one part of the first line; one of the third. (Be sure the pupil traces with his finger the whole portion of the line intended.) Now listen! If a line is divided into two equal parts, I call each part one half. Repeat that. Show one half. Why do you call that portion one half? How do you get one half of an apple? (The master here and afterwards varies these questions according to the wants of the pupil.)

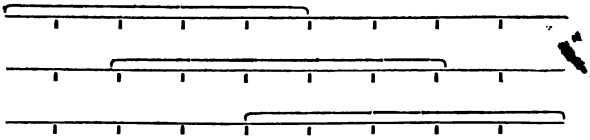
M. If I divide a line into three equal parts, I call each part one third. Repeat this—and similiar questions as above. What do you call one fourth of a line?—*A.* One fourth of a line is one part of a line which has been divided into four equal parts.

M. Now, show me one fifth,—another fifth,—the last fifth of the line. Show one eighth,—another eighth,—two eighths;—draw your finger over three eighths,—over three other eighths. Here I draw another line; I want to find five ninths of it; what have I to do?

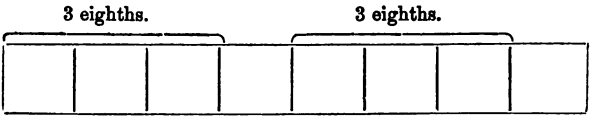
A. You must first divide it into nine equal parts, and take five of them.

M. Does it make any difference which five of the parts I take?—

A. You may take any five of the parts, either at the beginning, in the middle, or at the end of the line; for instance:—



M. I wish to take three eighths of this rectangle; what must I do —*A.* To take three eighths of this rectangle, you must divide it into eight equal parts, and take three of them.



M. If I divide a whole into several equal parts, and take one or more of those parts, I call that part, or those parts, a fraction. Repeat that: say several fractions. Now repeat this: A fraction is one or more parts of a whole which has been divided into equal parts.*

M. Repeat again a fraction.—*A.* Nine tenths.

M. Observe how many terms you pronounce in repeating that fraction,—nine tenths?—*A.* I pronounce two terms.

M. What is the first term?—*A.* Nine.

M. What the second?—*A.* Tenths.

M. What does this second term "tenth" signify?—*A.* That I have divided the whole into ten equal parts.

M. And what does the first term "nine" signify?—*A.* That I have taken nine of the equal parts.

M. Show that again on our lines. Now, remember: in each fraction I pronounce two terms; the first signifies the number of equal parts I take from the whole, and is called the Numerator. Repeat that. The second term of a fraction signifies into how many equal parts I have divided the whole, and is called the Denominator. Repeat that. Pronounce a fraction. Which is the numerator,—which the denominator of this fraction? In the fraction five eighths, how do you call the term five, and how the term eighths? What is the numerator of a fraction? —*A.* The numerator of a fraction is the term which signifies how many equal parts I take from the whole.

M. What is the denominator of a fraction?—*A.* The denominator of a fraction is the term which signifies into how many equal parts I have divided the whole.

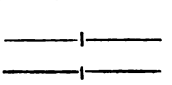
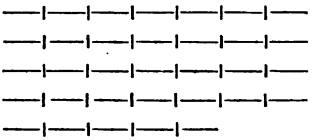
M. Say a fraction with the numerator 2, one with the numerator 3, 7, 9; now one, the denominator of which is 4, 7, 10. Repeat two fractions which both have the numerator 4, three with the numerator 7, two with the same denominator 4, three with the denominator 10.

[In the beginning it will be better not to admit any higher terms than 10, in order that the master may be able to illustrate on the black

* [This is Mr. Symons' definition in his "School Economy,"—"one or more equal parts of one." We prefer it so stated. A good deal that follows is an application of Mr. S.'s system.—Ed. J. E.]

suffer them to be established as leading principles; and in order to avoid that, he must frequently require demonstrations or proofs to be given as above.]

After having done a sufficient number of these examples in mental arithmetic as well as with the assistance of the slate for larger numbers, we come to mixed numbers, which offer not the least difficulty. The master, as before, illustrates several instances, and has the same done by his pupils. *Ex.*

$2\frac{1}{2} = \frac{5}{2}$  $4\frac{5}{7} = \frac{33}{7}$. 

He may also cause the pupils to write down their reasoning about these sums; as for instance (the sign $\therefore$ signifies "therefore").

$3\frac{5}{8} = \frac{7}{8}$.—*A.* $1 = \frac{8}{8}$, $3 = \frac{24}{8}$, $24 + 5 = 29 \therefore 3\frac{5}{8} = \frac{29}{8}$.

$23\frac{9}{16} = \frac{7}{16}$.—*A.* $1 = \frac{16}{16}$, $23 = \frac{368}{16}$, $368 + 9 = 377 \therefore 23\frac{3}{16} = \frac{377}{16}$.

M. Reduce the following:—

6 ft. $3\frac{1}{2}$ in.; 3 d. 17 h. $45\frac{1}{10}$ min.; 1 cwt. 3 qts. 19 lb. $7\frac{5}{8}$ oz.

M. Out of a store of 7 lb. $8\frac{1}{4}$ oz. I take daily $\frac{1}{4}$ oz.; how long will it last?—*A.* It will last as many days as quarters of an ounce are there. I reduce the 7 lb., &c.

M. A cask containing 3 gals. 2 qts. $1\frac{5}{8}$ pts. leaks; every hour $\frac{1}{8}$ pint runs out; in how many hours will the cask be empty? A publican buys a cask of spirits containing 3 gals. 1 qt. $1\frac{5}{8}$ pt. for 3*l.* 14*s.* He retails it in glasses holding $\frac{1}{8}$ pint, at 6*d.* each; how much profit will he make?

IV. *Addition of Fractions with the same Denominator.*

M. How much are five apples and three apples together?—*A.* $5 + 3 = 8$ apples.

M. Add together 7*s.* + 4*s.*, 9 lb. + 6 lb., 4 quarters + 7 quarters, 9 pieces and 5 pieces, 2 fifths + 1 fifth, 12 hundredths + 7 hundredths. Here we have had already an addition of fractions, and you will at once perceive that it does not differ from common addition of yards, cwts., &c. Remember and repeat what a fraction, its numerator and denominator, signify. The numerator is a common number, the denominator nothing but a name for the parts, like the words feet, inches, pounds, &c. The fractions $\frac{1}{3}$, $\frac{2}{5}$, $\frac{11}{20}$, might as well be written 1 third, 2 fifths, 11 twentieths; and as in adding, for instance, 5 lb. + 7 lb. + 2 lb. + 8 lb., we only add the numbers $5 + 7 + 2 + 8$, and say the sum 22 are 22 lb., so in adding the fractions $\frac{5}{37} + \frac{7}{37} + \frac{2}{37} + \frac{8}{37}$, we add the numerators, and say the sum 22 are $\frac{22}{37}$. What is, then, the general rule for the addition of fractions?—*A.* We add fractions together by adding their numerators.

M. Let us have *vivâ voce* and in writing some practice of this rule. If the sum exceeds one whole, we of course reduce it, $\frac{2}{3} + \frac{4}{11}$? $\frac{8}{25} + \frac{11}{25}$? $\frac{3}{10} + \frac{1}{10} + \frac{5}{10}$? $\frac{5}{29} + \frac{8}{29} + \frac{3}{29} + \frac{11}{29}$? $\frac{5}{7} + \frac{4}{7}$? $\frac{3}{10} + \frac{7}{10} + \frac{9}{10}$? $2\frac{1}{9} + \frac{4}{9}$? $9\frac{4}{5} + \frac{4}{5}$? $2\frac{2}{15} + 5\frac{3}{15}$? $3\frac{1}{8} + 7\frac{3}{8} + 2\frac{1}{8}$? $\frac{5}{8} + \frac{3}{8}$? $5\frac{2}{9} + 1\frac{7}{9}$? 2 lb. $8\frac{4}{10}$ oz. + 7 lb. $3\frac{7}{10}$ oz. Add two or three fractions, the sum of which does not come to one whole. Two, three, or more fractions, the sum of which is equal one

whole. Now let the sum be equal two wholes,—more than one whole. Add two or more mixed numbers together.

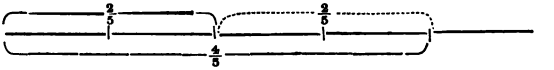
Obs. If there are too many fractions, or the sums too large to be remembered or operated with, we write them under one another, and, if necessary, separate the numerators to the right, and add them first, as follows :—

$\frac{13}{100}$	$2\frac{7}{12}$	$234\frac{69}{367}$	69	5 lb. $8\frac{17}{64}$ oz.	17
$\frac{17}{100}$	$4\frac{3}{12}$	$408\frac{248}{367}$	248	12 „ $3\frac{23}{64}$ „	23
$\frac{3}{100}$	$5\frac{8}{12}$	$513\frac{301}{367}$	301	9 „ $5\frac{51}{64}$ „	51
$\frac{21}{100}$	$9\frac{11}{12}$	$859\frac{169}{367}$	169	2 „ $9\frac{29}{64}$ „	29
$\frac{19}{100}$	$24\frac{3}{12}$	$2016\frac{53}{367}$	367)787(2 734 53	29 „ $10\frac{56}{64}$ „	64)120(=1 64 56
$\frac{73}{100}$	$86\frac{1}{12}$				

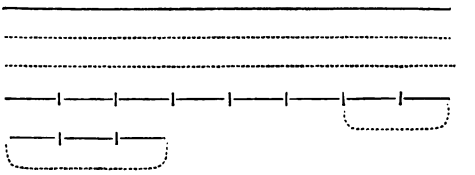
and many other examples.

V. *Subtraction of Fractions.*

The subtraction of fractions is of course treated quite in the same way as the addition, and offers no difficulty. Illustrations on lines or other figures may, as well as in the preceding chapter, be resorted to, and will always prove useful, particularly if the pupils are young. For instance: here we have $\frac{4}{5}$ of a line; take $\frac{2}{5}$ away; how many remain?



Draw 4 lines and $\frac{3}{8}$, take $2\frac{5}{8}$ from it, and mark those you take away with points, as above.



There are, as in the preceding chapter, different degrees of difficulty in the operation of subtracting to be observed, as: *a*) $\frac{5}{9}-\frac{1}{9}$? $\frac{13}{21}-\frac{8}{21}$? *b*) $8\frac{3}{5}-\frac{2}{5}$? $47\frac{10}{11}-\frac{8}{11}$? *c*) $1-\frac{3}{8}$? $8-\frac{5}{13}$? *d*) $5\frac{1}{3}-\frac{2}{3}$? $13\frac{7}{10}-\frac{9}{10}$ *e*) $8\frac{4}{5}-3\frac{1}{5}$? $10\frac{10}{11}-3\frac{6}{11}$? *f*) $4\frac{3}{5}-2\frac{4}{5}$? $18\frac{9}{20}-13\frac{17}{20}$? 2ft. $10\frac{3}{8}$in.—$5\frac{7}{8}$in.

Obs. The master may here remind his pupils that the more complicated cases of additions and subtractions have been omitted.

M. Can you add together $\frac{1}{3}+\frac{1}{4}$?—The pupil will soon find that this is impossible, as the two fractions have not the same denominator, or the parts to be added are not equal, which may, to greater evidence, be shown on lines.

M. If we have to add $\frac{1}{3}+\frac{1}{4}$, $\frac{5}{8}+\frac{7}{11}$, or any such fractions, the denominators of which are not equal, we are in the same case as if we had to add or subtract 4 Prussian dollars from 50 francs, which at first appears impossible. However, I can reduce the dollars to francs, or the

francs to dollars, or both to shillings, and then add (or subtract) them: 4 doll. = 15 frs. = 12*s.*; 60 frs. = 16 doll. = 48*s.*; therefore the sum would be 20 doll. = 75 frs. = 60*s.* We shall soon learn how to bring two or more fractions to the same denominator, and shall then be able to add or subtract any fractions given.

VI. *To bring a Fraction to a different Denominator.*

M. Here you see several lines, each divided into halves; I divide each half of the first line into two smaller equal parts; how many such parts come to the whole line? and how do you therefore call them?—*A.* Fourths.

M. How many fourths come to one half?—*A.* $\frac{1}{2}$ has $\frac{2}{4}$.

M. Divide each half of the second line into three equal parts; how do you call these parts?—*A.* Sixths.

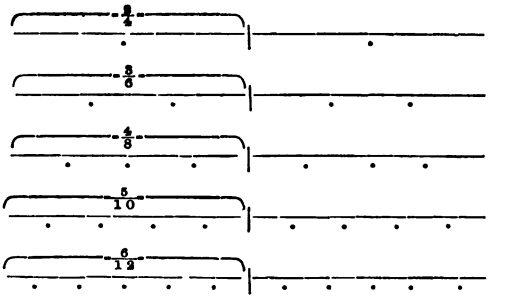
M. Why?—*A.* Because there are six of them in the whole line.

M. How many sixths come to one half?—*A.* $\frac{1}{2}=\frac{3}{6}$.

M. Show them on the line. If we divide each half into four equal parts, what parts of the whole will we get?—*A.* Eighths.

We have now reduced halves to fourths, sixths, eighths; into what other parts can we reduce them by dividing them into 5, 6, 7, &c., equal parts?—We may change halves into tenths, twelfths, fourteenths, &c.

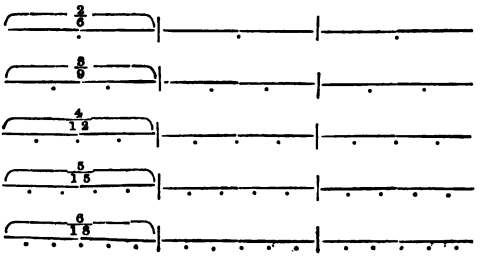
M. Begin once more, and say how many such parts each half contains.—*A.* $\frac{1}{2}=\frac{2}{4}=\frac{3}{6}=\frac{4}{8}=\frac{5}{10}=\frac{6}{12}$, &c.



M. Here you have $\frac{1}{3}$ of a line. What parts of the whole would it make if I divided each third into two smaller parts?—*A.* It would make sixths.

M. How many sixths are in $\frac{1}{3}$?—*A.* $\frac{1}{3}=\frac{2}{6}$.

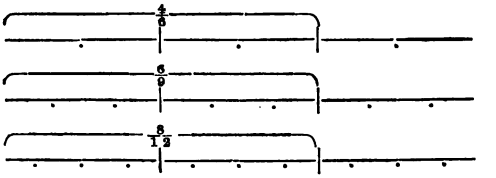
M. Divide each third into 3, 4, 5 equal parts, and say what it is like. —*A.* $\frac{1}{3}=\frac{3}{9}=\frac{4}{12}=\frac{5}{15}$.



M. $\frac{1}{3}$=how many sixths?—*A.* $\frac{1}{3}=\frac{2}{6}$.

M. Now take $\frac{2}{3}$, and say how many sixths they are.—*A.* $\frac{2}{3}=\frac{4}{6}$.

M. How many ninths, twelfths, &c.?—*A.* $\frac{2}{3}=\frac{8}{12}=\frac{10}{15}=\frac{12}{18}$, &c.



M. Into what parts may you reduce fourths, fifths, elevenths, &c., by dividing each into 2, 3, 4, 5, or more equal parts?—*A.* Fourths may be reduced into eighths, twelfths, sixteenths, &c.; fifths into tenths, fifteenths, twentieths, &c.

M. Say and write down the fractions to which you can reduce $\frac{3}{5}$.—*A.* $\frac{3}{5}=\frac{6}{10}=\frac{9}{15}=\frac{12}{20}=\frac{15}{25}=\frac{18}{30}=\frac{21}{35}=\frac{24}{40}=\frac{27}{45}=\frac{30}{50}$.

M. All these fractions are therefore equal to $\frac{3}{5}$. Look at the denominators; which are they?—*A.* 5, 10, 15, 20, &c.

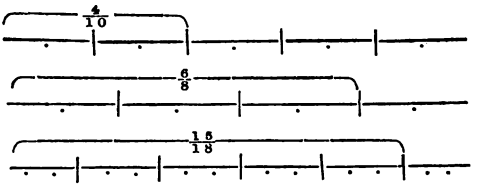
M. How do you obtain these and all following denominators?—*A.* By multiplying the first denominator, 5, by 2, 3, 4, 5, &c.

M. Now repeat all the numerators.—*A.* 3, 6, 9, 12, 15, &c.

M. How do you obtain these?—*A.* By multiplying the first numerator, 3, by 2, 3, 4, 5, &c.

M. You have, then, in each case multiplied the numerator of the fraction $\frac{3}{5}$ by 2, 3, or any other number, and multiplied the denominator by the same number. What was the result? Did you obtain more or less than the original fraction?—*A.* All fractions thus obtained were equal to the original fraction.

M. We may, therefore, establish as a general rule: if we multiply the numerator and the denominator of a fraction by the same number, the value of the fraction remains unchanged (although its terms become greater). Show once more on lines that $\frac{2}{5}=\frac{4}{10}$, $\frac{3}{4}=\frac{6}{8}$, $\frac{5}{6}=\frac{15}{18}$.—*A.*



M. Repeat what the denominator of a fraction signifies.—*A.* Into how many equal parts I divide the whole.

M. How does it therefore affect the fraction if I increase the denominator?—*A.* The fraction decreases, because the parts become smaller.

M. If I, for instance, multiply the denominator by 4, what becomes of the parts?—*A.* The parts become four times smaller; for instance, if I take eighths instead of halves, twentieths instead of fifths.

M. What does the numerator signify?—*A.* How many of the equal parts I take.

M. If by multiplying the denominator by 4, I decrease the fraction, or make the parts four times smaller, how many times more such parts

attacking my body; yet my heart is lifted higher still,—to heaven, and the blessed swarms of angels in glory." In this and the foregoing narratives we cannot but admire the calmness and confidence of men who could thus meet death, and even in their last moments thus set forth their faith to all who were present to hear them. It often happened that bystanders, encouraging the sufferers, and declaring that they, too, were partakers in the same belief, were called upon themselves to be judged and to suffer as Christians.

When Sixtus was Bishop of Rome, the Christians were assailed by the populace, who demanded that the treasures, of which they were said to be possessed, should be brought out to view. Laurentius, in whose charge were placed the contributions which the Christians made for charitable purposes, answered, "To-morrow you shall see them all." Accordingly, by the next day, he brought together the aged, the widows and orphans, who were supported by the alms of the faithful. The plunderers coming, as had been appointed, inquired where were the treasures? Laurentius pointed to the assemblage, and said, "These and the sick at home are our only treasures; a Christian Church does not store up its wealth, but distributes to those who have need." Sixtus, in a very few days being led to death, Laurentius called out to him on his road to execution, "O Father, whither art thou going without me?" "My son," replied Sixtus, gifted it would seem in that last hour of his life with somewhat more than mortal power of prophecy; "my son, in three days you will follow me!" In three days Laurentius might have been seen in the hands of the tormentors; iron bars were placed in the form of a gridiron, and on these he was slowly roasted to death.

Indeed, there seems to have been a horrible ingenuity shown in contriving for the faithful servants of Christ the most fearful of deaths: by order of the Roman emperor Galerius, a man was pierced all over his body with innumerable small holes, an excess of cruelty hitherto unheard of; yet we read of his dying words: "These holes," he said, "the more you make of them, will only be so many more glories. For Christ's sake you are piercing them in my flesh." Let us turn aside from the narrative for a moment. This man soon died, soon rested in the bosom of his Saviour; yet how died Galerius himself? God sent upon him a judgment of the same kind, yet more dreadful, than the death which he devised for the Christian; like Herod, he was eaten of worms in every part of his body, while yet alive.

We will not bring before ourselves more of these sickening details of suffering and death, nor yet will time let us enter upon more pleasing histories, speaking of firmness and constancy in duty, and faith, tried hard in one way and another, and some, if not all, by pains as bitter as any death that man could devise. There were Christians to be found in every condition of life, whether commanding or obeying, with pure and courageous hearts, serving their Lord in all things. We read of soldiers, brave and subordinate above all, whose valour against their country's enemies was not inferior to the most glorious times of Roman history; yet they would not be present, even in the performance of their duty, whenever worship was offered to idols; indeed, on one occasion a whole legion of soldiers, refusing to obey their commanders on this point, were surrounded by the rest of the army, and put to death together.

We read of workmen whom no persuasion could induce, or force compel, to do work of any kind at all that might be applied to injure the holy cause. Are Christians now as conscientious? Do not many, who would expect to be called sincere Christians, hesitate not in the least at doing anything in the way of business whence gain may come, though it may be in itself not much better than offerings for idols? Indeed, there is one great idol of wealth and power, to which more bow down than ever bowed down to any one pagan idol; yet many who worship Mammon call themselves Christians, and affect to pity those who are so degraded as to bow down to a god of their own making.

Among the early Christians we read of many who made sacrifice as heavy as the loss of life,—of leaving father, mother, brothers, sisters, and friends, for the sake of the kingdom of heaven. In those times it was necessarily so: in a family the Christians could not but separate from the heathen; the latter, indeed, to remain in honour, the former to be despised. The master would feel that his servant and himself were equals in the sight of God; riches and rank would forego their claims to honour; and, what would be harder still, learning would find that its wisdom was foolishness. Until, indeed, we have pictured to ourselves many scenes of domestic and private life in the times of early Christianity, we can have no idea of the courage necessary even to do what is so easy now,—to make a profession of faith. But we will leave this to be done by the aid of books, and only cite now, having heard somewhat of the glorious history of the noble army of martyrs, the passages from the Psalms:—"Precious in the sight of the Lord is the death of His saints:" and from our Lord's own words, "Whosoever shall lose his life for my sake and the gospel's, the same shall find it:" and from St. Paul, "Who shall separate us from the love of Christ? Shall tribulation, or distress, or persecution, or famine, or nakedness, or peril, or sword? Nay, in all these things we are more than conquerors through Him that loved us." F. I.

THE TRUE DIGNITY OF THE TEACHER'S PROFESSION.—In the teacher's profession, as in every other, we are not to judge of the possibilities or the limitations of the calling by its common aspects or its every-day repetition of task-work. I protest against the superficial and insulting opinion, that, in the education of children, there is no room for the loftiest intellectual enterprise, and no contact with divine and inexpressible wonders. Any teacher that so judges his vocation by its details, belittles it. The school-room, no less than the philosopher's laboratory, the studio, or the church itself, opens upwards into God's boundless heaven. Each of these very sciences I have named has moral relations, and terminates in spiritual mystery. And when you awaken a feeling of that great truth in your pupil by the veneration, the earnestness, and the magic devotion of your own mind, you have done him a service no less essential to the completeness of his education than when you have informed his understanding of certain scientific facts. Arithmetic, for instance, ascends into astronomy, and there you are introduced to laws of quantity, which make the universe their diagram,—to the intellectual magnitudes of La Place and Newton,—to the unsearchable empire of that religion which feels after the God of Arcturus and the Pleiades. The rules of grammar are only intelligible formularies that lie in the outmost boundary of an inexhaustible study. And the government of your pupils,—what is it but the faint and erring endeavour to transfer into that little kingdom you administer, the justice and the love which are the everlasting attributes of the Almighty himself, applying them even there to immortal souls? Let us not wrong the dignity of such an employment by denying its connection with things unspeakable.—*Prof. F. D. Huntington. From "Canadian Journal of Education."*

HINTS ON SCRIPTURE LESSONS.—No. 6.

THE PARABLE OF THE TEN VIRGINS.—MATT. XXV.

WATCHFULNESS is a duty this parable teaches: and ninety-nine out of every hundred teachers think they have fulfilled their duty in so teaching! Let us see if there be not far more to be got out of this parable than that; and if there be, is it not very foolish and very wicked to let God's word be wasted?

What does the word virgin or παρθενος mean? Not merely an unmarried woman, but a person pure from actual guilt. And yet there were foolish virgins; and they are the objects of Christ's censure—and who are, in fact, shut out from heaven—whom Christ nevertheless describes by a name which means that they were free from actual guilt. Moreover, we find that so far from being professedly sinful, or mere children of the world, these foolish virgins were His followers, and figure in this parable as appointed to wait on Him, the bridegroom.

The second great truth, therefore, to be exhibited is that, though our lives be blameless as to the commission of actual sins, there is something more needed than this self-righteousness to save us. And what is that something? In what figure shall we find it represented here? Why, in the oil which the wise virgins had, and which the foolish virgins had not. And what is meant by this, as essential to our souls as is the oil itself to the light of the lamp? It can only be the grace of God. If we have not that, vain is it to be pure even as virgin is pure. We need more; and it is the all-sufficiency of God's grace. This will alone impart what this parable shows can alone make us ready to meet God. And of whom must we have it?

V. 8 shows that part of the folly of the five consisted in going to their fellow-creatures for that grace which alone proceeds from the Giver of all good, through Him who is alone "able also to save them to the uttermost that come unto God by Him." "Go ye rather," said the wise five, "to them that sell, and buy for yourselves."

Let there be also impressed on the children to whom we disclose "the hidden things" in this parable, that the essence and sign of grace in the Christian are readiness and watchfulness. It is a blow at sleepy virtue, and the dormancy of mere professors, who put not their hands to the plough, nor keep their loins girded, and their light burning. It is a reproof to indolent innocence, and points to the pitfall of sloth.

The whole of this chapter is an epitome of the plan of salvation, and also powerfully depicts the judgment-day. How strongly activity in well-doing stands out in the foreground of the picture. The parable of the virgins is followed by that of the talents, which exalts labour, does homage to industry, and incites works of charity and universal love, showing how by the fruits and use we make of grace we shall be judged and rewarded. This is meat to the hunger of Christ, and drink to His thirst; and if we would learn the practical application of this exhortation (ver. 42), to feed Him, we have it in the vital words, "Inasmuch as ye did it not to one of the least of these, ye did it not to me."

LET US WORK AND WATCH!

S.

STYLE AND PUNCTUATION.

AN American cotemporary has these remarks on punctuation :—"Do not be afraid of the period (.) in writing; it imparts terseness to the style; it affords relief to the reader. Some writers seem to delight in long-drawn sentences. They supply the place of the period with a semicolon; and, in many instances, with a simple comma. They appear to have an abhorrence of capital letters. Now this is what we call inexcusable looseness in composition. Rules of punctuation are to be regarded less than a little common-sense observation. Whenever your sentence is complete, put in your period; and commence what you have next to say with a capital letter. Printers have orders, generally, to follow copy; but in doing so, an excellent article is often marred by the inattention of the writer in not indicating his separate sentences. Sometimes we venture an editorial change. But no man can punctuate another man's writing, as the writer himself can do, if he will only give it a little attention. The editor may even mistake the precise sense, and by the introducing of a point, vary the significance of the passage. We are not very fond of the task. We prefer that those who write for our paper should mainly prepare their articles as they wish them to appear.

"That punctuation has much to do with the precise meaning, may be illustrated by the following anecdote :—'An English statesman, having charged an officer of the government with dishonesty, was required by Parliament, under a heavy penalty, publicly to retract the accusation in the House of Commons. At the appointed time he appeared with a written recantation, which he read aloud, as follows: "I said he was dishonest, it is true; and I am sorry for it." This was satisfactory; but what was the surprise of Parliament, the following day, to see the recantation printed in the paper thus: "I said he was dishonest; it is true, and I am sorry for it!" By a simple transposition of the comma and semicolon, the ingenious slanderer represented himself to the country, not only as having made no recantation, but even as having reiterated the charge in the very face of Parliament.'"

The instance is a bad one; for the perversion could not have happened except from that vicious redundancy which spoils so much otherwise good writing on both sides of the Atlantic. Why say "it is true" in the above sentence? What does it express more than is contained in the affirmation, "I said he was dishonest?" If he said so, it was true that he said so, without this repetition of the same thing. Hence the first and main ambiguity. But the sentence is also incorrectly worded; inasmuch as the last word "it" may have for its antecedent either the whole of the first clause, or simply the fact of dishonesty. If it refers to the whole of the first clause, the sorrow is on account of having *said* the man was dishonest; but if it refers to the word "dishonest," it affirms that the writer is sorry that the man was dishonest.

It very rarely happens in well-expressed sentences that the sense depends thus on mere punctuation: and we attach far more weight to a clear, accurate, and terse style, which any one may teach himself who will take the pains. Junius is perhaps the best example. There seldom lived a better writer. Punctuation becomes unimportant in proportion

to the clearness of style. The above-cited remarks are, however, very good.

Without falling into the opposite extreme, many more full stops are desirable than it is common to use. They are great clarifiers of obscure and involved styles, and should be sedulously employed by awkward writers. Too great a use of periods, however, is objectionable. It interferes with that fluent ease of expression which is so great an element of good writing, and of euphony in speaking. Mr. Macaulay sometimes errs in this. He employs almost as many full stops as there are lines, even when he is writing calmly and on didactic topics; and oftener still in simple narrative. This practice gives his writing a spasmodic character, and the reader is forced into jerks. This is apt only to the narration of sudden and stirring events. Homer, Milton, and Mr. Russell, use it with great effect in the narrative of battles; but it would be out of place in the "Georgics" or the "Deserted Village."

Punctuation depends greatly on the taste and necessities of the writer. They who are in the habit of writing simply and plainly, require very few stops, and can almost dispense with them entirely. Conveyancers never use them; and this very beneficial result ensues,—they are bound so to collocate their sentences and choose their expressions, that the sense cannot be misunderstood. Commas are generally far too lavishly used. In all long sentences it is well to show the reader by a comma where he may best stop to take breath but suppose a sentence written as this is without a single internal stop how can misconstruction of its meaning arise? We wrote this last sentence without any premeditation, but exactly as the words flowed from our pen. There might advisably be a semicolon after "breath," and a comma after "stop;" but neither are essentially needed, simply because the sentence is so worded as not to be dependent on stops for its intelligibility.

We recommend the adoption of these general rules:—

1. Express your meaning as plainly as possible. To acquire this habit, write out your sentence first as you naturally would do. Then carefully reading it, see how you can best shorten it. This may be done generally by simply striking out extraneous words: and it is strange how often and how many of these will creep in. It may also be done by rearranging the clauses so as to make the sense of one, supplement the sense of the next. Take these clumsy sentences from the "Penny Cyclopædia:"—

"One of Elizabeth's earliest acts of *royalty*, by which, as Camden remarks, she gave proof of a prudence *above* her years, *was what* we should *now call* the appointment of her Ministers."

Better thus:—"One of Queen Elizabeth's earliest acts was the appointment of her Ministers. It gave proof, as Camden remarks, of a prudence beyond her years." They *were* her ministers; and the words in italics are all redundant or incorrect.

2. Brevity may also be achieved by making two sentences out of one. Parentheses may often be thus got rid of. "I am going to-morrow (in case it be fine, and if not, on Monday) to London." Better thus:—"I go to-morrow to London if it be fine; but if not, on Monday." Again, the writer in the "Penny Cyclopædia" says, "The affair to which Elizabeth first applied her attention on coming to the throne (and that in connection with which all the transactions of her reign

must be viewed) was the settlement of the National Religion." Now we may express this better and more briefly thus: "Elizabeth, on coming to the throne, first attended to the settlement of the National Religion; and all the transactions of her reign must be viewed in connection with it."

3. Another obvious mode of shortening sentences is to knock out words put in simply for the sake of rhetoric. Dr. CUMMING sins grievously in this tawdry redundancy; often at the sacrifice of his meaning: here is a shocking instance of it:—"Love is to a Christian what a coronet is to a noble—a crown to a monarch—a cowl to a monk. It is his badge, the ensign of his greatness, the mark of his birth; the absence of it is fatal to every claim to be a Christian—it is the pulse of life."

Well may Cobbett say that figures of rhetoric are sharp-edged tools. Imagine an intensely Protestant preacher, famed for eloquence, and, one would suppose, for a correct use and appreciation of English, likening a Christian first to *a noble*, and then to *a monk*, and *love* to *coronets* and *cowls!* What is an "*ensign* of greatness?" A "claim *to be* a Christian" is not sense. He means a claim to the reputation of Christianity. If a man *be* a Christian, he need not "*claim*" what he is, or what he has: and if he be not a Christian, no "claim" can make him what he *is not*. The whole gist of the sentence lies in the beginning and the end, and may be thus perfectly expressed (omitting only the nonsense): "Love is to a Christian what the pulse is to life."

As candidates for the Civil Service are expected to write correctly, and as it is rapidly becoming an essential requirement in all ranks of society, this subject will have our frequent attention. It is, we incline to think, a branch of education too little thought of in public schools, and seldom well taught at home.

NATURAL EDUCATION.—"Alas! how many examples are now presented to our memory, of young persons the most anxiously and expensively be-schoolmastered, be-tutored, be-lectured, anything but *educated;* who have received arms and ammunition, instead of skill, strength, and courage; varnished, rather than polished; perilously over-civilized, and most pitiably uncultivated! And all from inattention to the method dictated by Nature herself,—to the simple truth, that, as the forms in all organized existence, so must all true and living knowledge proceed from within; that it may be trained, supported, fed, exerted; but can never be infused or impressed."—*Coleridge.*

LIFE IS NOT A STATE OF REST, but of incessant operation; the most perfect *perpetuum mobile;* a continual circulation of action and being; a compound of working powers, maintained by one principle, for one end. Everything bodily in man is subject to changes and alterations; everything on which the vital principle exercises its action is in a continual alteration of increase and decrease, of loss and reparation, of growing old, renovation, and restoration. Scarcely have a few years elapsed when our substance, in regard to the bodily part, is entirely renewed, and, as it were, again created from the surrounding elements.—*Strave.*

REMINISCENCES OF AMERICAN SCHOOLS BY AN OCTOGENARIAN.

[It is a rare privilege (says the "Massachusetts Teacher") to receive from a living man an account of what he himself saw, and was a part of, eighty years ago; to be carried back with the vividness of personal narrative, and the interest of personal sympathy, nearly a century of the world's progress, and that a century so fraught with change, and thickly studded with great events, as the last. Through what throngs of inventions, discoveries, adventures, compositions, wars, battles, dynasties, and revolutions, must memory force its way to reach the year 1776! We are thus transported by the following extract, which, through the kindness of its venerable author, we are permitted to make from a Lecture delivered before the Hampden County Teachers' Association, by the Rev. Timothy Mather Cooley, D.D., of East Granville. We find a brief sketch of its author in the valuable "History of Education in Western Massachusetts," by Mr. Parish, of Springfield.

"Through the first 150 years or more of the educational history of Western Massachusetts, much instruction was given by ministers. Of one who still remains, Rev. Dr. Cooley, of Granville, an interesting chapter might be given. His school education commenced in 1776. He says, 'the only school-books were Dilworth's Spelling-book, the Primer, and the Bible. The furniture, as I recollect, was a chair for the master, a long hickory, and a ferule. Reading, spelling, a few of the business rules of arithmetic, the catechism, and writing legibly, was the amount of common school education for sons; and for daughters, still less. The luxury of a slate and pencil I never enjoyed till I entered college. Previous to 1796, no academy existed in Western Massachusetts, except a well-endowed institution at Williamstown. In the autumn of 1796, I commenced my family school. Probably as many as 800 have been under my tuition, and as many as 60 or 70 have entered the ministry; others have been high in office and members of Congress, &c. I have had between 20 and 30 under censure (rusticated) from colleges. A few lads have been sent me that were irreclaimably reckless. Almost without exception they *died in their teens!*' Dr. Cooley had a remarkable tact in influencing those under his care by moral suasion and kind address. He has performed a great work as a teacher as well as minister."

The Rev. Dr. Cooley, as we are informed by one who is well versed in the philosophy, history, and biography of education, was born in East Granville, March 13, 1772. His mother was Sarah Mather, of Windsor, Ct., a descendant of Rev. Richard Mather, of Dorchester. He graduated at Yale College in 1792, and was ordained pastor of the church in his native town, February 3, 1796. He continued his pastoral charge nearly sixty years,—until May, 1855. In the very year of his settlement, he added to his ministerial labours the work of preparing young men for college or for active business, to which allusion is made in the extract above. He also did much to stimulate and assist the young of his parish in the acquisition of useful knowledge. He procured a library of valuable reading, and those whom he instructed in a Bible Class on Sunday had the privilege of drawing-books in the week. He has been rewarded by the eminent success and gratitude of many of these. He has served as a member of the School Committee of Granville *forty-eight years.* Can New England furnish another case of equal length of service? He has also, during most of his public life, been a faithful trustee of a neighbouring Academy, and of Williams College; having, it is said, never failed, notwithstanding the mountain-range which intervened, to attend Commencement at the latter, with one exception when his class after their long separation held a meeting in connection with the Yale Commencement. What an envied life of abundant and varied usefulness!

Surely we may say, with the gentleman to whom we are indebted for these facts, that Dr. Cooley, if any man living, "has a right to speak on the subject of Education." Those who had the privilege of listening to his Lecture, must have felt as did the Greek host, when, as Homer tells us,

"Slow from his seat arose the Pylian sage,
Experienced Nestor, in persuasion skill'd;
Words, sweet as honey, from his lips distill'd.
Two generations now had pass'd away,
Wise by his rules, and happy by his sway;
Two ages o'er his native realm he reign'd,
And now, the example of the third, remain'd.
All view'd with awe the venerable man,
Who thus with mild benevolence began."]

"My own common school education commenced, I suppose, in '76,—the memorable year of our country's strife for independence. Not far from the nation's birth-day was my *first day* at school. The first rude-built schoolhouse, probably the first erected on the Green Mountain range, I remember well, and can describe it. The building was limited in dimensions, low and narrow, and had no clapboarding without, or plastering within, to give comfort to the scholar during the intensity of cold in winter. In one corner stood the rough stone chimney, where one cord of wood a week would scarcely suffice. A long table, with a bench upon each side, was the privilege of the class of writers. The other furniture was a low bench for the abecedarians, a more elevated one for the next older classes, a swing table for the master, a broom—seldom used,—a ferule, and a fearful rod of correction.

"The burning of the master's ferule was an incident among my early reminiscences. One morning the master was detained from school. It was a cold winter morning, and a large fire was glowing on the hearth. It was decided by the older scholars to burn the ferule; but who could dare do such a deed? No one would take the responsibility alone. As many as could take hold of it at once, united; and, thus dividing the responsibility, the ferule was committed to the fire.

"The result I do not remember. But I remember another case. A scholar who had some taste for the languages, learned the Latin phrase for asking leave to go out. Instead of employing it himself, he suggested it to a coeval, who, much delighted, went to the master with his '*Licetne mihi exire, Domine?*' The master took it as an insult, and inflicted a scourging, which even the spectators would never forget. Years after, the master died in the poor-house, and the reckless scholar had long before gone down to the drunkard's grave.

"It would amuse you to hear a class read the spelling-book in the antiquated style:—'A by itself, a, b-a-s-e, base, abase. I by itself, i, d-o-l, dol, idol. A by itself, a, m-a-ezzard-e, maze, amaze, m-e-n-t, ment, amazement. Perhaps there will be a smile at the ludicrous in these early arrangements for educational purposes; but if the picture looks dark and ludicrous, I present it as it was threescore and eighteen years ago.

"There are, however, light shades of a serious and delightful character. In all my recollections of the common school, there was no instance of *vulgarity* or *profanity*. And if an old man with silvery locks passed near the play-ground, it was not,—'Go up, thou bald head; go up, thou bald head!' All noise was hushed; and the lads and misses, arranged in order and stillness, paid their tokens of reverence to the old man.

"The standard books in school were Dilworth's Spelling-book, the Primer, and the BIBLE. First of all, the Bible, especially the discourses and acts of the Saviour, poured forth their heavenly instructions upon the school-room, every hour in the day. Every child, in every day of life, was thus imbued with the teachings of Him who 'spake as never man spake.' The Saturday catechising, in the best uninspired system of doctrine and duty, was the closing exercise of every week.

"My respected friends, it was such schools and such nurturings, that formed the 60,000 soldiers furnished by Massachusetts alone for the army of the Revolution. They furnished the men who fell at Lexington, at Bunker Hill, and in the bloody massacre at Stone Arabia. Not a few

of the army at Ticonderoga,* at White Plains, at Princeton, and in the last decisive action at Yorktown, were the sons of the Pilgrims. Many fell without leaving a stone to designate the spot of the soldier's sepulchre. Early common schools were also the nursery of such mighty spirits as Franklin, Hancock, the Adamses, Sherman, and many others in civil life; and of such luminaries in the church as Shepard, the Mathers, Stoddard, the Edwardses,—

> "'Whose fame will spread from shore to shore,
> Till moons shall wax and wane no more.'

"At a later period, the Books of Noah Webster, his *First, Second,* and *Third Part,* were introduced, and gave a new character to common schools. Other books were added, and new studies were introduced. The simple expedient of the black-board has imparted a new impulse to the business of teaching the exact sciences.

"Sixty years ago a district school was opened in a respectable town in Connecticut, the brief history of which may cast light on the subject. The number of scholars was thirty-six between the ages of six and fourteen; and the school was kept for one year. In reply to some inquiries of the teacher, the Committee remarked that there would be no difficulty, except that one reckless lad must be punished every day. A brother of President Dwight had kept the school the preceding year, and found this to be the only course. The school opened. The bad boy was noticed the first day, and distinguished by his small flashing eye, his long and quick step, and rapid movements.

"The boy was twelve; and *now,* if ever, was the time to save him. The teacher resolved on a different course. He was treated with kindness and even favouritism. There was little danger of suspicion of odious partiality, in this case. The poor reckless boy was won and saved. Another year, under the old discipline, would probably have sealed his fate for ever. He yielded to kindness, though he could never be made to yield to the scourge. The teachings of Scripture, on this subject, are perfect. The *child,* before he can speak or go alone, is to be subdued, effectually and permanently, by the rod of correction. This hopeless lad became one of the best scholars of the thirty-six. Twelve years after he graduated, at a New England College, with the first honours of his class. He became an attorney-at-law, and was at the head of the bar. He was afterwards a judge. He is a professor of religion, 'an honest man, the noblest work of God.'

"You may have a curiosity to hear the biography of a district school, kept sixty years ago. I can give it in part. One of the pupils died during his second year in college. One was governor of a state. One, as you have heard, was a judge; one a State senator; one a physician. One became a maniac. He entered a schoolroom, where was a young lady, the teacher, and inflicted upon her wounds with his penknife which nearly proved mortal. Afterwards, in a new town, out West, he snatched an infant from the cradle, and taking it to a stump, with a hatchet severed its head from its body. One stole a Bible from the college chapel, and carried it home and presented it to his minister. One died at New Orleans; one died at sea; and one by suicide. One

* The wife of the speaker was thus left an orphan at the age of six months.

became president of the Bank at Brattleboro', and one of the Union Bank in New York. Two became eminent as sons of the printer; one at Binghamton, New York; and one in Ohio.

"I need not proceed farther with this commingled detail of the pleasing and the painful. It may seem to you more like the tales of romance than sober, truthful history, that the members of a single district school should travel so wide apart, and present biographical sketches so highly elevated, and so deeply and affectingly depressed. Hence let teachers beware of their high and awful responsibility. You act upon minds whose future destiny may range as wide apart as the chair of state and the dark cell of the penitentiary. Mind, like the smooth ocean, is easily impressible with the slightest touch; and yet the impression, once made, is graven, as with an 'iron and lead in the rock for ever.' Every movement of the teacher in the schoolroom must strike a chord which will vibrate for ever." [This description of the instruction given in the last century, in American common schools, exactly corresponds with that given in two-thirds of our own at the present time.—Ed. E. J. E.]

FONDNESS FOR TEACHING.

THE question is often asked by those about to engage in teaching:—"I wonder if I shall *like* teaching." Now, one of the first requisites for success in this vocation is a fondness for the occupation,—an ardent love for the work; and we would have beginners in the profession enter upon their labours with nothing less than a determination to *love* the work. This determination, before a practical trial has been made, cannot, as we think, be regarded as premature or inconsiderate. No person should engage in teaching, without having first studied the nature of the calling, and his fitness for its duties; and public sentiment now quite generally demands, also, some special professional training for the work. In the case of an individual who has thus studied his vocation and himself (we use simply the masculine pronoun for the sake of convenience, including, of course, teachers of both sexes), and also, perhaps, made some special preparation for engaging in it; and who still has a desire to make a trial at teaching; it is fair to presume that there is enough in such a person's tastes and predilections to constitute a guaranty, that the labours of the teacher will be, in a good degree at least, congenial to him. Hence we think such a beginner in teaching may safely resolve to *love the work.*

Entering upon the labours of the schoolroom with this resolution, the young teacher will be in a frame of mind to understand properly the nature of his work, to grapple successfully with its difficulties, and to bring the full strength of a willing mind to bear upon the discharge of his duties. This, most assuredly, will lessen his trials. Such a state of mind is to him the achromatic glass, through which he clearly sees the many perplexities and provocations he necessarily encounters, in their true relations, without distortion, and without the confused colour-

ings of a dissatisfied mind. And it is to him, likewise, the astronomer's planet-seeker—the *far-seeing glass.* It enables him, reading the hearts of his pupils, to discern those little points of light, not obvious to common vision, to understand those little peculiarities and traits of character, to discover those little signs of encouragement and success, so cheering and so valuable to him, and which by a doubting, wavering, and indifferent teacher are never seen.

But there are teachers, too many indeed, who do not love their work. It is not very uncommon to hear one of that class remark:—"I would not follow teaching, if I could get out of it. I am in the business, and am not fit for anything else." Alas, that such a teacher should not understand himself, as well as others understand him! While he is conscious, or fancies himself so, that he is "fit for nothing else," it is a matter of deep regret that he is not also conscious of his utter unfitness for the very business in which he is engaged.

According to our idea of the feelings which a teacher ought to cherish for his calling, the schoolroom must seem the most unsatisfactory place in the world to a teacher who regards his labours as mere drudgery, and looks upon them with disgust. It would seem to be a kind of slow, but real, torture. Small, indeed, must be the pleasure that such a teacher derives from his daily labours. Not only is he a loser himself in this respect, but he inflicts a great wrong upon the community. He is without the proper spirit of a teacher, and he cannot labour with success, or profit to others. His work will be unskilfully and badly done; and he will send forth his pupils infested with his own bad temper, and without that harmonious development of their powers and character which is the true end of education. He owes it to himself, but more especially to the welfare of the community, to cultivate and exhibit a fondness for his calling; or to step aside, and give his place to others who are qualified to discharge its important and delicate duties.

Such is the character of the age, that the teacher has a great work to perform,—great, not only in respect to its arduous duties, but in respect to its consequences upon our own, and upon future times. No one qualification is more indispensable for him than a love for his work, —the true teacher's spirit. The teacher who has it will take delight in his labours, and will be willing to spend his strength and his days in moulding the character of the young. And let him not fear lest he may not be appreciated. A successful teacher of the right spirit is quite sure to be sought for, and to be awarded a compensation that will enable him to devote his life to his profession. He will secure the co-operation of the public, and of all friends of improvement in particular; will be recognized as a useful citizen; and will have assigned to him that position, socially and otherwise, in the community, that will entitle him to the respect and confidence of his fellow-men. To such a teacher every valuable member of the community will say, in the language of the curate Nathaniel to the schoolmaster Holofernes:—"I praise the Lord for you. You are a good member of the Commonwealth." IDEM.

FEMALE EDUCATION.—No. 2.

MENTAL CULTURE.

THE subject we propose to ourselves to examine in this paper is the intellectual culture of the mind; a serious inquiry, second only in importance to that of the moral culture of the heart.

This mental education may be carried on in two ways,—by intercourse with others more advanced than ourselves in knowledge and acquirements, and by the study of books. It is to this latter branch that we would now direct our attention, and inquire carefully, first, *why* we should read, and then *what* and *how* we should read.

In answer to the first of these queries we cannot do better than quote the words of Trench, in his eighth Hulsean Lecture for 1846:—"The meaning of books is to make us understand something else besides books;" and "we miss their significance to us, when they have their end in themselves, when they do not hand us on to life and to action, when they explain to us no mysteries of our being, help us in no struggles of our souls, make clear to us no dealings of our God."

The answer to our second question, What should we read? presents us with very little difficulty in words, but requires much care in its execution.

If two branches of study are offered to us at the same time, we should be guided in our choice, not merely by what is most captivating to our fancy, but what will be most useful both to ourselves and others. If a work of the most fascinating character, but of an objectionable tendency, is laid before us, we should resolutely resist the temptation to read it. It may leave an unobserved impression upon our minds, which will make itself perceived some day. A single brick loosened, or put out of place, may cause the ruin of an elaborate structure; and so a single right feeling distorted, and put out of position, may destroy our whole moral and intellectual fabric. The good effect a single book may produce is strikingly exemplified in the history of St. Augustine, who, when he was rapidly hurrying along the downward path of mad dissipation, fell in with the "De Philosophiâ" of Cicero. This implanted in his mind a desire to search after wisdom; and in after-years he described with deep thankfulness to God, how that book, though it could not bring him into the inmost sanctuary of the faith, yet was to him in the truest sense a porch to that auguster temple, not made with hands, into which at a later day he should be privileged to enter; and handed him at once over to the searching of the Scriptures, although it was not till a later period that he understood all their hidden treasures of wisdom and knowledge.

It is not always in the longest works that we find the greatest amount of information. If such had been the case, few European authors could have contested the palm of victory with Al Tabiri, the Livy of Arabia, whose labours originally extended over 30,000 leaves! Nevertheless, we must guard against considering ourselves proficients in a subject of which we have merely read a popular exposition in one of those numerous and most useful little works intended to make the acquisition of knowledge easy. Nothing can be better than these books as far as they

go, but they are intended rather to lead us on to study than to supersede its necessity. Let us use them as helps, and we shall appreciate their real value; but let us guard against making our knowledge superficial by considering them all-sufficient in themselves.

We now arrive at the third branch of our inquiry, How should we read?

To do this with any profit to ourselves, we must *systematize* what we read. It is not sufficient merely to load our memory with a mass of crude facts, events, or theories; we must arrange them; we must mark how one has arisen out of another,—how they support each other, and how they explain other facts and circumstances before unintelligible. Without this kind of systematic arrangement, our stores of knowledge are, to revert to our former simile, like a heterogeneous pile of stones without shape or use; with it, like the same stones formed into a beautiful edifice, each stone supported by, and in its turn supporting, its fellow.

Thus, if we are studying the history of a country, we must keep in view the manners and habits of its people, and the period at which the various recorded events took place, for we shall otherwise form a very incorrect idea of the characters brought before us in that history. If we would be impartial, we must not judge a barbarian by a civilized standard,—an Asiatic by an European one,—a heathen by a Christian one.

What is dark in one part or branch of our studies may be enlightened by another, if we will only devote a little time and care to its examination. It will not perhaps be considered irrelevant to our subject if we give an example or two to illustrate our meaning; showing, first, how profane history may be elucidated by a careful examination of the Scriptures; and subsequently, how those Scriptures are themselves explained by a reference to history.

The ancient religion of this country was, as we all know, Druidical; and the erection of huge circles of stones was one of its characteristic features. The exact purport of these circles has, however, been a subject of great controversy. Let us see what light the books of the Old Testament will throw upon this point. In the fourth chapter of Joshua we find the children of Israel commanded to take twelve stones out of the bed of the river Jordan, and lay them down in the place where they had lodged the night after their passage. This place was called Gilgal, a word signifying circle. Here, then, was a circle of stones set up in memory of the divine interposition of the Supreme Being. When, therefore, we meet, even in an island far away from Palestine, a structure of a similar character, we naturally conclude that it also was erected in honour of the Deity worshipped by the people of that island. Amongst the primitive Druids, God was denominated Hu Gadern, or the mighty Hu; and his worshippers, though in the time of Cæsar they were degraded by a bloody ritual and a debased faith, appear from ancient records to have once possessed the original belief of the early patriarchs in a state of considerable purity. That Gilgal was not, however, simply a memorial erection, but was subsequently used for religious ceremonies, is evident, because Saul was there consecrated, and Agag "hewed to pieces before the Lord;" and that it was employed also for judicial purposes, is proved by the subsequent intimation that at

Gilgal, "the Circle," the prophet Samuel held his courts of judgment from year to year. Reasoning from analogy, we may very naturally infer that the Druidical circles were employed for similar purposes; but if we are not in the habit of applying and comparing what we read (and this is a defect too prevalent in a woman's education), we should have passed over every reference to Gilgal, even when informed of the meaning of the word, without thinking it possible to explain any other difficulty by its assistance.

If the sacred writings will thus throw a light on dark points in profane history, the latter may in its turn be employed in the elucidation of Scriptural difficulties. In the seventh chapter of the First Book of Kings, we find a detailed account of two pillars which Solomon set up in the porch of the Temple. To the ordinary reader these verses contain little either of profit or instruction; but to the ancient Israelite this was far from being the case. In the infancy of nations, signs and emblems fulfilled to a certain degree the office of books and teachers. In the East this habit has been still partially retained; but in former times it prevailed to a far greater extent. The adornments of every sacred building conveyed to the mind of the beholder some instruction by their symbolic meaning; and this not merely to an Israelite, but to every nation of antiquity, who equally comprehended the meaning of the sign. Keeping this fact in view, let us endeavour to read in the names Solomon gave to these pillars, what his intention was in their erection. The one he called Jachin, meaning, as the marginal reference tells us, "He shall establish;" the other Boaz, that is, "In it is strength."

It was a popular belief in ancient ages that the earth was supported by pillars; hence a pillar was the received symbol of strength and divine power. Consequently, Boaz and Jachin represented the sustaining power of God.

On the top of these pillars was a capital of lily work, called the bowls of the chapiters, the chapiters themselves being spheres, and over both were wreaths of pomegranates. The import of the whole may be easily interpreted by the key of ancient symbolism. The lotus, or water-lily, which rises from a root growing at the bottom of the water and maintains its position on the surface by its columnar stalk, was a well-known emblem of the earth, with its supposed columnar supports, and hence typified the power of the Almighty securing the safety of the world. The chapiter or sphere represented the body of the earth thus supported. The pomegranate wreaths signified its fertility. Solomon, by erecting these pillars in the porch of the Temple, was silently but forcibly declaring to all nations, that the *one* God worshipped in that Temple was the Creator and Preserver of the world.

This reference to the ancient cosmogonies of the world explains the meaning of several other passages in the Old Testament, which would now be otherwise unintelligible; for example, that in the 75th Psalm, 3rd verse, "The earth and all the inhabitants thereof are dissolved; I bear up the pillars of it." And, again, that in the First of Samuel, the 2nd chapter, and part of the 8th verse, "The pillars of the earth are the Lord's, and He hath set the world upon them." What idea can these passages convey to us unconnected with the explanation which makes them so full of meaning? A very feeble one, it must be admitted.

We might, were it desirable, multiply examples of the same character to an almost infinite extent, but this would be unnecessary, as we merely wish to explain the principles we have already laid down; these principles being, that really to understand a subject, and to appreciate its importance, we must not be satisfied with simply looking at the events themselves, but must seek out also what were the causes which produced, and the results depending on them; together with their bearing upon other facts of a similar character. If we do not try to do this, our feelings will often be carried away by the strange or romantic character of the incidents, on which we love to dwell; while our judgment will have little power of exercising itself, or forming a correct estimate of the real merits of the case.

Important, however, as these rules may be, they will avail us little unless we pursue them with steady perseverance. "Unstable as water, thou shalt not excel," was the prophecy of the dying patriarch concerning Reuben and his descendants. The same words apply with equal force to both sexes at the present day. Success is seldom to be attained without exertion. If, when we meet with a difficulty, we throw aside our work as too hard, without an effort to overcome that difficulty, we shall sink slowly but surely down, till our characters become stunted, our aims trifling, our occupations frivolous; and then either carelessness or despondency will gradually obtain the mastery over our minds.

The late Mr. Mogridge, under his assumed title of Old Humphrey, treats of the latter fault (that of despondency) with remarkable force in the following passage: "It is hard to fight against, and still harder to conquer this mood, for when it once lays firm hold of us, it drags us down to the very dust. My advice to you is, to wage war against it with all the powers of your mind; set about something that requires energy of action, something that will force your thoughts into another channel." We must not mistake despondency for humility. One is a virtue, the other a fault. The one, by showing us our deficiencies, urges us to renewed exertion; the other, by making us despair of success, prompts us to lay down our arms without further effort. Let cheerfulness and perseverance, then, be the watchwords of our course, if we would hope for victory in the end, never forgetting that success more frequently depends upon ourselves than we are generally willing to admit.

We cannot close this part of our inquiry without saying one word on the subject of accomplishments; upon the acquisition of which it has been frequently thought that a woman's education principally depends. If she be a good musician, artist, and linguist, many persons will confidently assert that she is highly educated; and yet her mind all the time may have been totally neglected. This is like placing the ornaments where the foundation should be, and putting woman on a lower stage than the one she ought to occupy.

Others again seem to contemn the acquirements and graces which assist in giving softness to the female character, confining themselves wholly to the stern realities of education. Surely it is unwise to act thus, and to despise or neglect those elegant accomplishments which, while they enable us to confer so much pleasure on others, are an *innocent* source of interest, occupation, and happiness to ourselves, and *often* become an invaluable resource in the hours of sickness or sorrow,

when the powers of the mind are unstrung, and we are physically unable to apply ourselves to real study. We would, therefore, urge their cultivation with the greatest care; but let them assume only their proper place. Let them be as the flowers we gather on the way, but never the aim of our journey through life. Let them be added to, not, however, superseding, the cultivation of our hearts and minds. "Life is real! Life is earnest!" says the great American poet: would that we all felt more deeply the truth of his words, and that—

> Not enjoyment, and not sorrow,
> Is our destined end or way;
> But to act, that each to-morrow
> Finds us farther than to-day.

C.

ON DRAWING.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—Mentally or physically, no end can be accomplished without the exercise of natural means; yet it is remarkable, that in all our educational institutions, and more particularly at the Universities, this axiom is unrecognized, and to this may be justly attributed the lamentable shortcomings and practical deficiencies of the people of this country, more especially among the higher classes. The following remarks are submitted, to call attention to, and point out the remedy for, so defective a state of things.

God has given to man five senses, through which access is obtained to his understanding. Why two out of those five senses (the two *most* sensitive) should, in our educational systems, be left untutored, to their own natural instincts, no reason can be fairly assigned. The eye and the hand are as ready instruments in acquiring knowledge, and of combined usefulness, as the ear or the tongue, and very many precious faculties are entirely dependent upon their right exercise, whilst their neglected culture and undirected influence is the greatest barrier to advancement and civilization it is possible to conceive. Optically, the eye sees *nothing* which the *mind* does not look for; therefore it must require tuition, as much as the ear to listen, or the tongue to talk. England excepted, no other nation, ancient or modern, have omitted in a very prominent manner to realize this fact, and to make the *language of form* an essential part of mental development.

With no desire to undervalue reading or writing, it must not be forgotten that the ear and tongue are at best but conventional appliances of limited powers and signification: speech has been bitterly defined "as the art of hiding thought," and how often names are but the husk to cover ignorance, is well known. The evil of this generation is *talk* instead of action: books cannot impart everything, as is now attempted; there is a vigilance of observation and an accuracy of distinction which neither rules nor precepts teach, words being incapable of conveying any *definite* idea *of things, no matter* in whatever language,—Greek, Latin, German,

French, or English; much less can structure, proportion, and character, with those exceptional varieties of circumstances so entirely depending on obversation, and wherein partial inference is vague and barren without the co-operation of the whole senses. Of things, the slightest *sketch* will at a glance convey a more accurate and concise idea than a volume read, the drawing being, as Coleridge aptly defined it, "a something between a thing and a thought." *Drawing*, in fact, is the natural mode and means of communicating substantive impressions with clearness and perspicuity: its study inducing, by observation, intelligent, instructive, and active comparison, with investigation, independent of its ingenious operations and happy associations; the manipulative part requiring no rare aptitude (as is erroneously conceived by the unpracticed), being simply an imitative art, and not necessarily involving picture-making, which is the separate business of an artist.

The recommendation of the Lords of the Committee of Council on Education is a move in the right direction, by proposing to render the study of Drawing an *essential* part of instruction for all branches of the community; but this good counsel will prove entirely abortive, unless literature and the art work together at the Universities. A *precedent* must be set at Oxford and Cambridge, by founding *drawing-schools* therein, and *appointing good, able masters*—men who can draw and teach too, having at command fine models and examples for instruction; one hour's practical exercise in the art of Drawing being of more value to the pupil than all the eloquence that can be put together, with titled professors to receive stipends for doing nothing but talk, or lending the useless incumbrance of names. It will be a bright day for England when she earnestly begins to remedy the shortcomings of her Universities, and when education shall resume its meaning and purpose,—not a game at blind-man's-buff, but a training of the good powers of soul and body.

July 11*th*, 1856. Φ.

PERSEVERANCE.—Men of genius without endurance cannot succeed. Men who start in one kind of business may find it impossible to continue therein all their days. Ill health may demand a change. New and wider fields of enterprise and success may be opened to them; new elements of character may be developed. Men may have a positive distaste for some pursuits, and success may demand a change. None of these cases fall within the general rule. Men may have rare talents, but if they "are everything by turns, and nothing long," they must not expect to prosper. No form of business is free from vexations: each man knows the spot on which his own harness chafes; but he cannot know how much his neighbour suffers. It is said that a Yankee can splice a rope many different ways; an English sailor knows but one method, but in that method he does his work well. Life is not long enough to allow any one to be really master of but one pursuit.—*Michigan Journal of Education.*

A SKETCH OF THE REFORMATORY CONFERENCE AT BRISTOL.

SEVERAL of the best friends and promoters of the reformation of young offenders met at Bristol on the 20th of August, and held conference there for three days, on divers matters appertaining to the movement. It was the best Conference we have seen. Defects, indeed, there were; but there was a larger proportion of useful matter, and working, thoughtful men and women brought together, and practical points were more sensibly and usefully canvassed than we are accustomed to at these meetings. Lord Stanley was President. No young nobleman has achieved a better reputation in a shorter time: yet his attention cannot have been long directed to this subject; and he has had still less practical experience in the working of Reformatory Schools. It is very English to maintain this deference to clever lords, without any reference to their peculiar qualifications for the philanthropies they are thus selected to lead. Lord Stanley's opening address was long and good, and he went through all the reasons in favour of the Reformatory movement with much ability; and there were passages in it eloquently written. On contested points he expressed himself warily, and with an evident caution not to commit himself to any extreme views. In the outset of the cause, or even four or five years ago, such an address would have been desirable and requisite: now it had the lesser merit and usefulness of expressing in forcible terms what we all feel and appreciate. Lord Stanley's demeanour as President gave much satisfaction. At the concluding meeting he gave a long *résumé* of his opening paper, together with some account of what had been done in the Sections.

The same evening a very clear and interesting account was read by Mr. Bengough, which had been written by Miss Carpenter, of the Reformatories in and near Bristol. This was followed by a very long paper from Lord Brougham, on the inefficiency of merely penal discipline for children; a subject on which no one entertains any doubt whatever. The Dean of Bristol read it, and went boldly through it all; nothing daunted at the concluding anathemas hurled at our professional theologians.

The next day good papers were read. Mr. Wheatley descanted on punishments and rewards at the Reformatories, followed by a lively discussion, in which Mr. Sidney Turner electrified the ladies by denouncing all rewards, puddings in particular. This punishment question, and how far there should be previous punishment for the crime committed, and if so, whether in the reformatory or the gaol, was the subject of much discussion in a remarkably thoughtful and ably written paper by Sir Stafford Northcote, who advocated by unanswerable arguments the infliction of punishment for the offence against society. He wished it to be in the gaol. This called forth a very few remarks in favour of inflicting it in the reformatory from Lord Robert Cecil, whose speech at the evening meeting on Thursday was full of quiet wisdom, though nowise popular with the more tender-hearted philanthropists. Miss Carpenter, in her otherwise excellent paper on "The Female Reformatories and the relation of the State to them," remarked, that so exploded was the notion that Reformatories

would incite crime, that it was needless to answer it. Lord R. Cecil again stated that such a fear was anything but chimerical, as the experience of France had testified. We regard the statistics of committals as no proof of this. When the committing magistrates know that there are Reformatories, they naturally, as in France, increase the number of committals on that account; so that committals are really no indices of crimes: and it is notorious that nothing can be more divers in English counties than the vigilance of detection or the proportion which punishments bear to offences. But there can be no doubt that many a destitute child would commit crime to go to a Reformatory, if he only knew its comforts, and was deterred by no preliminary punishment. Many such instances have already occurred, and if that be so now, when the chance is slight of going to a Reformatory, greatly will they increase when Reformatories shall have so far multiplied that such chance is converted into almost a certainty.

It is quite true that liberty is dear to the child; but hunger, thirst, and cold render food and shelter and warmth dearer still. Besides, though there are very judicious walls and locked doors in some town Reformatories, which certainly are not inviting, it is not so in the country ones, and whence a good deal of running away is already effected. There must be preliminary punishment as a preventive to this very probable abuse, or a great benefit may be turned into a great evil; and the apprehension of this is deterring Lord Hatherton and very many other benevolent men from joining our ranks. Therefore we think it highly desirable that there should be no more attempts made to dissociate punishment from crime. Mr. Wheatley, who is a most kind and philanthropic man, wished nothing so rash as this abolition of proper correction; and we rejoiced to find that there was a very general disapproval of such a notion at Bristol. Nor could it well be otherwise with Christians. The moral sense of society requires that there should be a public mark of vice, and that offences should be punished as a public attestation of the detestation in which society holds them, as well as in order that their repetition should be prevented. But what says Scripture? "If his children forsake my law, and walk not in my judgments; if they break my statutes, and keep not my commandments; then will I visit their transgression with the rod, and their iniquity with stripes. Nevertheless, my loving-kindness will I not utterly take from him, nor suffer my faithfulness to fail." Again, "Now no chastening for the present seemeth to be joyous, but grievous; nevertheless afterward it yieldeth the peaceable fruit of righteousness unto them which are exercised thereby."

The teaching of these passages is too obvious to be mistaken. It is vain to resist their teaching by imputations of vindictiveness. Framed according to the principles, and forming part and parcel, of a Gospel of divine justice and infinite love, its benignity is attested by its origin.

The fourteen days to which the law confines the punishment of the juvenile offender is by no means the best correction which the case admits of. It would be far better so to arrange the Reformatories that certain wards, fitted up with separate cells, should be appropriated for the reception of the young offenders, who might then be committed even before trial to the Reformatory, and so avoid what Lord Stanley

so strongly impressed on the first meeting as the indelible brand of the gaol. We attach still greater weight to the effect on the child's own mind. Whatever society may think of him hereafter, *he* will have lost much of his own self-respect. The brand will, in his mind, be on his brow for all the world to see; and it will be a by-word of reproach, a lasting stigma, according to *his* belief. The moral sanction is impaired; he has lost the higher status of the non-imprisoned man. There is one item in each man's claim to social respect which he cannot forfeit, for it is already gone. The moral evil of this may be sometimes exaggerated, but it has a certain reality and weight entitling such considerations to regard. There are no practical difficulties in coupling the penal and reformatory processes in the same building, whilst keeping them perfectly distinct. Sir Stafford Northcote forgot, in arguing against it because the same superintendent would administer both disciplines, that there would of necessity be two superintendents, charged with different functions, and possessing very different qualifications, and that one would have no concern with the province of the other. The same chaplain would, however, superintend both departments, and have the great advantage of studying the child's character from the beginning, and both under the penal ordeal and the reformatory process. We have here merely glanced at these salient advantages. There are, however, many others which we trust will be speedily developed in a separate treatise, for the subject has had scarcely any discussion at Bristol.* It appears to us a plan freer than any other from objections, and will, perhaps, sooner or later, be adopted.

There were excellent papers by Miss Carpenter on the relation of the State to the Schools, and another, equally good and full of wise suggestions, from the Rev. Sydney Turner, on the means of providing for those who leave the Reformatories. The Report read at the General Meeting omitted any mention of the liberal grants of the Committee of Council,—a strange omission, well supplied by the Bishop of Bath and Wells, and next day by Miss Carpenter, who spoke in high terms of the new Minute (inserted in our last Journal) of June 2nd.

The discussions were greatly cramped by the long orations of one or two speakers. Indeed, we heard it remarked that very nearly half the whole time allotted to meetings and sections had been engrossed by three individuals, no one of whom had had any practical experience in the management of Reformatories; inasmuch as they who had had such experience were, almost without an exception, present; several having come from the most distant parts of the kingdom. This should not have been; and precautions against its recurrence ought to be taken next time. The evil is great, for men not practically experienced in the work almost necessarily dwell on general principles, or merely controversial points. Now, on general principles no doubt exists, and controversy is not the most useful mode of expending the time of the Conference.

Perhaps the most interesting and instructive day was Friday. It was devoted to visits to the Reformatories. Miss Carpenter's excellent establishment for girls at the Red Lodge in Bristol was twice visited by

---

* See Collection of Papers, &c., on Reformatories; sold by Routledge & Co. *Price 1s 6d.*

separate parties. It contains about 30 girls, with room for more. They are excellently trained, and passed a fair examination, considering the short time many of them have been in the house, and the appalling state of ignorance and vice in which they enter. It is in an old and remarkably curious mansion, built in the reign of Elizabeth, and containing some very handsome old oak carving. A small party were permitted to visit the St. Arnold's Convent, rarely shown to any one, where the party were received by the Lady Superior, the Chaplain, and other authorities of the house, which stands on the property of W. Gillow, Esq., who liberally presented it. The Convent contains a Reformatory, just opened, for Roman Catholic criminal girls, nearly all of whom are Irish children from Liverpool. The wards appropriated to their use are admirably fitted up, and the dormitories were excellent and remarkably well ventilated. The provisions for industrial training were capital, including cooking, baking, washing, and gardening. Some of the nuns will learn trades to instruct the children. Kingswood, under the able superintendence of George Bengough, Esq., was next visited. It is for boys only, containing about 40, and is now under a greatly improved system of management. Field labour is the great auxiliar of reformation here. Other Reformatories exist in and near Bristol, which owes its pre-eminence in these Reformatories greatly to the residence and continued zeal and exertion of Miss Carpenter and Mr. Commissioner Hill and his highly accomplished and benevolent family.

The Orphan Asylum was visited by a large party, both sections having met there. It is a princely building, and rears, educates, and maintains destitute orphans of both sexes, being built and supported, according to the statement of Henry Müller, the founder and manager, entirely by voluntary donations, procured solely by prayer and faith. Very many thousand pounds must have been so raised, for a more extensive or admirably constructed building for the purpose we never saw. The children looked remarkably well, and were obviously in the best possible state of discipline. Of their education we had no sufficient means of judging, but it was, at any rate, apparently well cared for; the only defect observable being the need of better industrial training and fitting labour for the boys. The girls have household work, and all are sent out to service or trade by the managers. The cleanliness and order which pervades the whole of this immense establishment is perfect. A superintendence of no ordinary discretion, precision, and power, is everywhere manifest.

Not one of the least interesting incidents of the Conference was the presence of Mrs. Jameson and Miss Dix; the former our own distinguished author, and the latter an American lady, whose placid demeanour and accomplished mind would scarcely have indicated her as the noble founder of no less than nineteen lunatic asylums, by means of her own individual efforts. Though the queen of charity was not there, due homage was done to Miss Nightingale; and her relative, Mr. Bracebridge, gave, after dinner on the first day, some most interesting anecdotes of her residence in the East, and of the deference and respect shown to her by Lord Raglan, who visited her during her first illness. Mr. Bracebridge stated that the world would never know what she had undergone, or the difficulties that had beset her labours; and he ended

by saying, that great as were the qualities in her justly appreciated by the public, that of *forbearance*, in his judgment, surpassed them all.

We must not omit to mention how greatly the comforts and facilities of the visitors were promoted by the kindness and hospitality of Mr. Miles, M.P.

May there be many more Reformatory Conferences! S.

PRINCIPLES OF A METHOD OF TEACHING SINGING IN ELEMENTARY SCHOOLS.

VIII. Melody should be taught by means of Harmony.

2. *Successions included in Chords—continued.*

WE have now to deal with the minor chords.

The first thing for the teacher to do is to enable his pupils to apprehend and sing a minor triad, as a type. Any sound of moderate height may be taken as the root, and the combination, having no relation to a scale, should be sung, not to any *sol-fa* syllables, but to the numerals 1, 3, 5.

The pupils will soon perceive that the difference between the minor and the major triad lies in the second sound, which, the teacher may explain to them is, a large or major third above the first in the one case, and only a small or minor third above the first in the other, whence the names given to the two triads.

M. J. R. Weber has some excellent remarks on the practice of the minor triad in the Theoretical Part of his Method :—

"The major scale is formed by the combination of the ratios of sounds most nearly related to one another. The most nearly related sounds have the ratios 1 : 2 : 3 : 4 ; the harmonic ratios joined with each of these sounds are 4 : 5 : 6.

"Whenever a key-note appears, all these ratios appear simultaneously with it. Nature, therefore, gives us only a major third and a major fifth on a key-note. But with the major third and major fifth, the minor or small third (5 : 6) is also given, just as the semitones are given with the harmonic main points in the scale. The ratios 4 : 5 : 6 consist of two-thirds raised one above the other, the first of which is major, the second minor. Each of these intervals is harmonious in itself, as well as in its combination with the other to form a triad. If we invert the intervals so as to make 5 : 6 come first and 4 : 5 second, we get the following triad :—10 : 12 : 15.

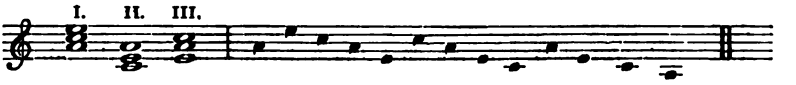
"This triad must likewise be harmonious, as it consists of the ratios of the natural triad. But if the ear apprehends the lowest note of this triad as the key-note, it goes contrary to nature ; for nature gives us a large third on the key-note in the common chord, whereas in the minor triad there is always a small third on the key-note ; and the singer who is not acquainted with this combination has great difficulty in banishing from his ear the natural sound which forms this large third with the fundamental note, and in singing instead of it the sound which forms the small third.

"We know that the more intelligible interval 4 : 5 is the last one in the minor triad, and that the interval 5 : 6 is the first; they are both included in the fifth. If the singer follows the plan which nature points out, in learning to sing the minor chord, and takes the ratio 4 : 5 first, from which it is a natural descent to the minor third below, he will find the matter come easy to him, as the most difficult ratio, the minor third, is thus given him without further trouble."

The teacher will now tell the pupils that there are three minor, as well as three major, chords in the major scale, and proceed to the practice of the minor chords. No complete phrases can be formed from these chords alone in the major scale: they occur only as transition steps interspersed among the major chords. In order that each exercise may have a complete character, it should consist of a tonic phrase.

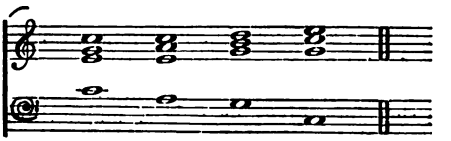
1. The minor chord on the sixth sound of the scale (*la*), as it includes the tonic and the mediant, is the most closely related to the tonic harmony. This chord should be practised with the syllables *la, do, mi*, first as an harmonic combination, and then dispersed in various ways as melody, thus (Fig. 1):—

FIG. 1.—MINOR TRIAD OF LA, AS HARMONY AND MELODY.



The most common tonic phrase in which this chord is introduced is naturally the upper tetrachord itself. The full chords are as follows (Fig. 2):—

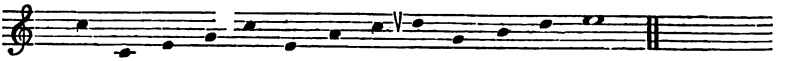
FIG. 2.—PROGRESSION CONTAINING MINOR TRIAD OF LA.



This harmonic progression should be practised by the class, the master taking the lowest notes.

By melodic dispersion of the triads, the upper part may be expanded into the following passage (Fig. 3):—

FIG. 3.—SAME PROGRESSION WITH CHORDS DISPERSED.

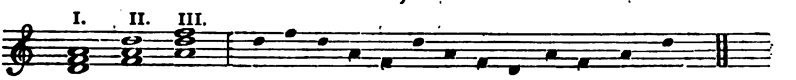


This passage should be practised both with and without the accompaniment of the full chords.

2. The minor chord on the second sound of the scale (*re*) bears the same relation to the minor chord on the sixth (*la*), that the chord of the subdominant bears to the chord of the tonic. This chord should be

practised both harmonically and melodically to the syllables *re, fa, la* (Fig. 4) :—

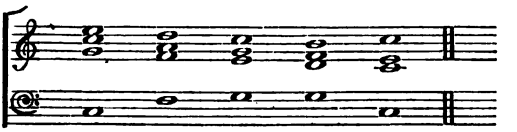
FIG. 4.—MINOR TRIAD OF RE, AS HARMONY AND MELODY.



We do not think it advisable that the syllables *la, do, mi* should, even at the commencement, be used as general names for all three minor chords. The syllables must show the similarity of the chords of different scales, not the similarity of the chords of the same scale; for which latter purpose the numerals, as we have already said, are best adapted.

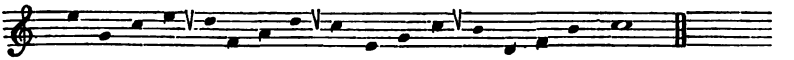
One of the most common tonic passages in which this chord is employed is the descending lower pentachord of the scale (Fig. 5) :—

FIG. 5.—PROGRESSION CONTAINING MINOR TRIAD OF RE.



The upper part in this progression may be expanded into the following phrase, which may be practised in the same manner as the foregoing exercise (Fig. 6) :—

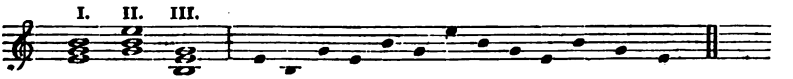
FIG. 6.—SAME PROGRESSION WITH CHORDS DISPERSED.



3. The minor chord on the third of the scale (*mi*) bears the same relation to the principal minor chord that the chord of the dominant bears to the chord of the tonic. We have mentioned this similarity of relations simply to account for the order in which we have taken the three minor chords.

The present minor chord must be practised in the same way as the preceding two (Fig. 7) :—

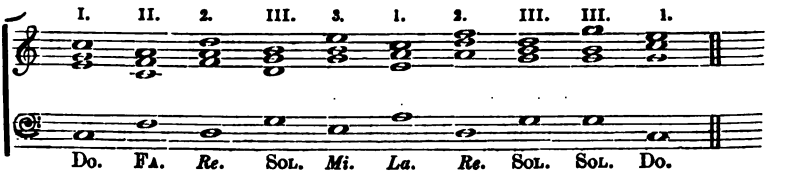
FIG. 7.—MINOR TRIAD OF MI, AS HARMONY AND MELODY.



Being a dominant chord in relation to the principal minor chord, it is invariably followed by the latter, and thus it is not employed so frequently in music written in the major mode as either of the others. Its employment is exemplified in the subjoined progression (Fig. 8), which contains all six chords. The three major chords are denoted by Roman

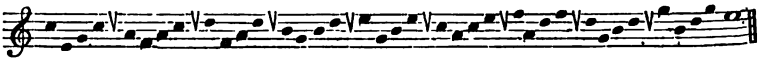
numerals and capital letters; the three minor by Arabic figures and Italic letters :—

FIG. 8.—PROGRESSION CONTAINING ALL SIX CHORDS.



This progression will give us the following melodic passage (Fig. 9):—

FIG. 9.—SAME PROGRESSION WITH CHORDS DISPERSED.



In practising the foregoing and similar melodic passages, the bass notes of the progression should always be added by the master, to sustain the voices of the children; for there is nothing that keeps a class of young singers, and indeed of any singers, in tune so well as a good firm bass. In executing a single melody or part, the singer has nothing to guide him except the relations of the single successive sounds, and these relations are frequently indirect and occasionally ambiguous. But when the harmony is supplied either by other voices or by an instrument, he has the further guidance afforded by the impression of the direct relation of each sound to the other sounds of the harmonic combination to which it belongs, especially to the root from which the combination springs. The roots of the chords occur more frequently in the bass than in any other register. Further, the low notes have a breadth, force, and decision which render them peculiarly adapted to give the impression of stability in the fundamental sounds. Hence it is that a bass, either vocal or instrumental, when itself well sustained, affords (as a bass ought to do) a good support to an upper part. And such support is evidently afforded in the highest degree when, as in the exercises which we have proposed, the melody consists of chord successions, and the bass holds on the fundamental sound during each.

We have thus concluded the subject of successions occurring in chords, and arrive at the third kind of successions, namely,—

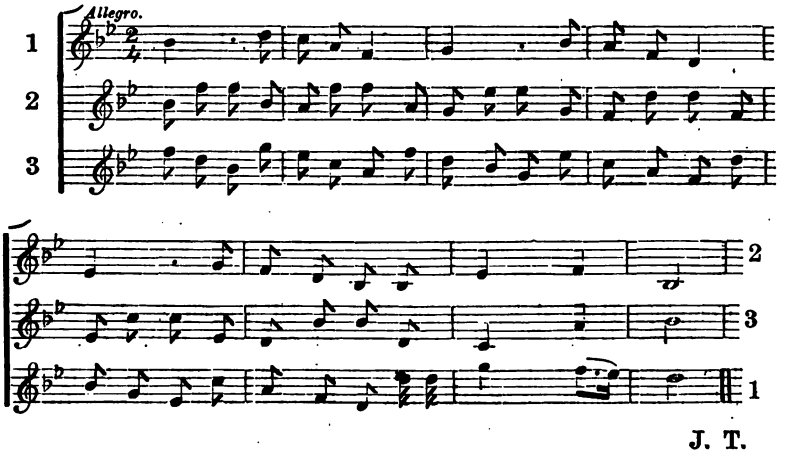
3. Successions arising from the progression of chords.

Most of the intervals contained in successions of this kind will have been already practised as parts of chord successions. The only intervals that will not have been so practised are sevenths, and, with the exception of the minor seventh on the dominant, which has been included among the chord successions, these intervals occur so seldom that they will not need any separate practice. It is probably for these reasons that Dr. Marx has omitted to notice successions of this class.

In concluding our exposition of this principle, we give the following

Round by Purcell as a good exemplification of all the three kinds of melodic successions (Fig. 10):—

FIG. 10.—ROUND EXEMPLIFYING ALL THREE SUCCESSIONS.



J. T.

(To be continued.)

INTERNATIONAL CONGRESSES AT BRUSSELS.—"Two International Congresses are shortly to be held at Brussels; the one, for improving the physical and intellectual condition of the working classes, to be opened on the 15th of September; the other, for promoting the principles of free trade, to be opened on the 22nd of the same month. The latter is intended to bring together documents of every kind tending to elucidate the manufacturing and commercial economy of nations, especially in relation to their mutual intercourse. The other is intended to induce a better knowledge of the actual condition, wants, and resources of the industrial population in various countries, and to encourage the adoption of the most practical means for improving their health, comfort, and intellectual development. With this view it will be connected with an exhibition of articles of domestic and sanitary economy, which is to be opened on the 25th of August, and to be closed on the 5th of October. The exhibition will, it is hoped, lay the foundation of a permanent Economic Museum. A committee has been appointed by the Statistical Society of London in aid of the Brussels Philanthropic Congress, while the Society of Arts has similarly undertaken the furtherance of the Economic Exhibition.

Notes of New Books.

Short Notes to Sophocles. Oxford: Parker.

Another volume of the Oxford Pocket Classics. At the commencement of each play there is a succinct account of the subject, and an abstract of the contents. The notes embody the results of the latest criticism, without discussion, but yet with numerous references to works where the student may meet with discussion. The tendency of late years has been to multiply notes *ad infinitum*: we are glad to have a prospect of the tide setting henceforth in another direction.

A Complete Decimal System of Money and Measures. By W. H. Jessop, B.A. Pp. 88. Cambridge: Deighton, Bell, & Co.

The distinctive feature of Mr. Jessop's system appears to be the simultaneous change of *weights and measures*, as well as *money*, to the decimal method; or, if one must precede the other, the new *measures* should be the first. This plan would, in his opinion, overcome many of the difficulties which have hitherto frustrated the scheme. By way of illustration, we may take the postage-stamp: the dram is in the first place increased, so as to equal 2·111 old drams; the ounce = 10 new drams, or 21·116, instead of 16 old drams. In the next place, the coin is altered so as to make 1,000 instead of 960 farthings to the pound: and new coins are introduced (with old names) to represent the lower decimal amounts, *e. g.*, 5 farthings = 1 noble; 10 farthings = 1 mark; the noble (it will be observed) exceeding the value of the present penny in the proportion of 4·8 to 4. By the payment of a noble instead of a penny, the Post Office would carry a letter weighing half a new ounce with no greater loss than one penny for every nine letters carried at that rate, whereas the simple change of the penny, or $\frac{1}{240}$th part of the pound, into the $\frac{1}{200}$th part would be productive of a greater proportionate loss to the public. As it is, it appears to us that the public would be the losers in a certain way, inasmuch as in future they would only be able to send 200 letters for a pound, instead of 240: it is true that the letters might be heavier than they used to be by more than a quarter, and if the public were in a position to avail themselves of this boon, they would be actually gainers; but the question is, whether the public would care for the proffered boon.

Similarly, the mile in Mr. Jessop's system = 61,155·14, instead of 63,360 inches, and four new farthings are somewhat less than four old farthings, in the proportion of 25 to 24 A rule of three sum will show that the difference in the length of the old and the new mile is very nearly in the same proportion as the difference in the value of the old and the new four farthings, so that, in short, one new penny for one new mile would be the same as one old penny for one old mile.

We do not give any opinion as to the abstract merits of Mr. Jessop's system, or as to its practicability. His theory is no doubt correct: if decimal computations are the best for money, they must also be best for

weights and measures. His adaptations of the one branch of the subject to the other are ingenious. We still doubt whether such sweeping changes could be carried into effect.

A Plain Commentary on the Book of Psalms. Part I. Pp. 104. Oxford: Parker.

Such a Commentary has been for some time much needed. Criticism has been exercised on the Psalms more than on any other portion of the Old Testament; but no attempt has hitherto been made to *popularize* the results of this criticism. In the work before us, the Prayer-book version is adopted as the text, we presume as being more familiar to us: where the text requires emendation, a corrected version is added: the explanation that follows the several verses is of a plain and practical character: and at the close (ought it not to have been rather at the *beginning* ?) of each psalm there is a brief introduction, informing the reader of its author, title, and substance. We should have liked the work better if some attempt had been made to group the verses of each psalm together, so as to preserve the connection between the different portions: this might have been done in the introduction by the addition of a short abstract, on the method adopted in Hengstenberg's valuable work.

Handbook of the Greek Drama. By E. Walford, M.A. Pp. 242. London: Longmans.

The contents of this volume are as follow:—A history of the Greek Drama, from its earlier origin to its decline; an analysis of Aristotle's treatise on poetry; a chapter on scansion and tragic phraseology; and an appendix containing the canons of Porson, Blomfield, and Monk, together with other extracts. The general plan of the work is thus the same as that pursued by Dr. Donaldson in his "Theatre of the Greeks." Mr. Walford has drawn his materials from the highest authorities,—Donaldson, Müller, Böckh, Paley, Schlegel, and others; and from these materials he has compiled a manual, written in an agreeable style, and characterized with the discernment of a ripened scholar. This work ought to be in the hands of every pupil in the upper classes of our public schools: we venture to recommend it most warmly to the notice of our readers.

The Characteristics of Style and Analysis of Ornament. By R. N. Wornum, Esq. London: Chapman and Hall.

This is a series of elaborate Lectures, illustrated by wood-engravings, very beautifully executed, showing the features of ornamental art in each epoch. It is scarcely so much an educational as an artistic work; but we cannot withhold the expression of our admiration of the skill, taste, and ability of Mr. Wornum.

Practical Astronomy, Navigation, Nautical Astronomy, and Meteorology. By Young and Hugh Brun, John Scoffern, and Lowe. Pp. 584. London: Houlstone and Stoneman, 1856.

The object of this book is to serve as a guide to the scenery of the Heavens, but its chief merit is in its epitome of nautical astronomy

and navigation, which part of the work appears to be carefully done. A great deal of it, however, is collated from other works. It is illustrated throughout, and contains an immense mass of matter. The chief defect in the book seems to be an omission of elementary links, so as to make the book intelligible to learners: it is rather provoking too, in the seventh page, to find that the chapter on logarithms is of no use to them, unless they have another volume to explain trigonometrical terms. Upon the whole, however, the book exhibits great research and industry, and is a valuable addition to the literature of sciences.

Elementary Arithmetic. By Edward Sang, F.R.S.E. Pp. 231. London and Edinburgh: Blackwood, 1856.

The appearance of this book is prepossessing: its typography and paper are unceptionable. This is always a recommendation, as far as it goes. It is the first of a series of mathematical treatises. The author thinks arithmetic has been hitherto considered a species of legerdemain, and he wishes to make it an intellectual exercise, and to exclude dogmatism. We heartily agree with him; but we must not suppose that he stands alone in this effort. Mr. Tate and others have laboured in the same field, and we think with great success; nevertheless, Mr. Sang has the merit of much novelty in working out his system. Our chief objection to it is its excessive prolixity: the first eighty pages of small type do not bring us even up to simple division. The chapter on ratio and proportion is one of the most important parts of the book, and we think, upon the whole, the most successful. The great puzzle is how this book is to be applied in practice: it contains a vast deal which is too elaborately elementary for teachers, and at the same time it is far too abstract for children, nor would it at all facilitate their acquisition of the rule-of-three to go through Mr. Sang's preliminary disquisition on the nature of ratios: in fact, we think, it might be far more easily and readily taught by Mr. Tate's, Barnard Smith's, Calder's, or Colenso's systems; in short, however, clever and accurate, Mr. Sang's is hardly to be termed a practically useful book on "Elementary Arithmetic."

Series of Questions and Answers on Greek Grammar. Part II. By the Rev. J. D. Collis, M.A. Pp. 277. London: Longmans, 1856.

The short exercises on the tenses are remarkably good, and the syntax also. It evinces great analytical talent in the explanation of Greek Grammar. The book is beautifully and accurately printed, and we are right glad to find that a "Praxis Latina," on the same plan, is in the press, by the same author.

LITTLE BOOKS.

The Stepping-Stone to Natural History. By James Owen. Pp. 191. (London: Longmans, 1856.) A very nice little book, paving the way to the study of natural history, and especially of zoology, by a series of questions and answers. It would be impossible to comprise more interesting information in the same scope, or with more clearness.——*Catechetical Lessons on the Parables of the New Testament.* (London and Oxford: J. H. & J. Parker.) Very suggestive questions, with judicious references and points of morale. They will greatly assist teachers and clergymen in their practical application and explanation of parables—a duty far too little practised.——*Adanijah, a Tale of the Jewish Dispersion.* By Miss Jane M. Strickland. An

interesting and instructive story, told with the author's peculiar power.——*Examination Papers in Greek and Latin Authors.* Edited by J. R. Major, D.D. (Oxford: J. H. & J. Parker.) Very admirably-selected and useful papers, so printed and arranged in separate pages as to be practically serviceable for examinations in school or college.——*The English Hymnal.* A new edition, pp. 304. (London and Oxford: Parker, 1856.) This is a very nice little book, with appropriate hymns and psalms, and the suggestions at the commencement are good, as a means of avoiding the common system of "drawling out hymns."——*My First Place—Cottage Homes.* (London: Jarrold & Sons.) These are simple tales, with good morals, and calculated to interest the class for whom they are intended.——*First Principles of General Knowledge.* By Susanna M. Paull. Second series, pp. 250. (London: Relfe.) This is a most interesting book, and contains a vast deal of useful information. The subjects are arranged as follows:—Chronology—Coins and Money—Weights and Measures—Productions of the Earth used for Food, Medicine, and Manufactures—Animals, Birds, and Insects—Geology—Mineralogy—Manufactures—Mathematics—Optics—Electricity—Physics, &c.—Navigation—Acoustics—Architecture. We hope it will have a large circulation.——*A Complete Catechism of the Descriptive Geography of England.* By T. Challener. Pp. 150. (London: Longmans, 1856.) This Catachism is accurate, and contains a multitude of facts, but stated with a brevity which renders them dry. It presents the framework of pictures, to be filled up by the teacher.——*An Hour with the Kings.* By the Rev. Thomas Bourne, B.A. (London: Houlston and Stoneman.) Not a badly-written little history, but too short to be very serviceable. It reduces dates to a sort of memoria technica, which may be useful.——*Knowledge made Easy.* By George Vasey. Pp. 144. (London: Pitman, 1856. This book contains a vast deal of information on various subjects, commencing with the arts of spelling and reading, writing, and the multiplication-table. The principles of short-hand, brief outlines of geography and astronomy, and grammar, are added; a table of abbreviation of words, and the kings and queens of England since the Conquest, appear at the end. It will both amuse and at the same time materially aid a child in gaining knowledge.——*Second Report of the Evangelical Italian School.* Conducted by Signore and Signora Ferretti. (London: Hunt & Elliott.) It is the pious object of this institution to evangelize Italian girls in London, and, by their means, as well as by direct efforts, to spread the knowledge of the Gospel in Italy.——*The Eco di Savonarola* is a monthly publication, in English and Italian, devoted to the same good objects. We wish to both every possible success. ——*Familiar Objects by Straight Lines.* By Rev. C. Richson, M.A. (London: National Society.) A series of excellent models for drawing straight-lined objects, and thus training both eye and hand. It aids penmanship as well as drawing. They are excellently done, and exhibit admirable judgment in the highly-accomplished editor, whose zeal and efficiency in all educational works are deserving of the highest praise.——*A Treatise on a Box of Instruments, &c.* By Thomas Kentish. Second Edition. (London: Ralfe & Fletcher.) A most useful little book, full of practical information.——*Questions on the Use of the Globes.* By W. Hardcastle. (London: Relfe & Brothers.) This little book will save teachers a great deal of trouble, and the questions are judicious and practical.——*A Course of Practical Geometry.* By W. Pease. Third Edition. We like this work much. It is condensed, simple, and accurate.——*Lessons on the Collects appointed for Sundays in the Book of Common Prayer. Lessons on the Epistles appointed for Sundays. Lessons on the Gospels appointed for Sundays in the Book of Common Prayer.* Pp. 393. (London: 169, Fleet-street.) This is a valuable book for teachers and pupils, as in the Lessons on the Collects each collect is discussed sentence by sentence, and at the end is a tabular explanation of the more difficult words and phrases used in the collects. Lessons on the Epistles commence with a consideration of the nature of the passage; then the chief and secondary lessons to be inculcated; then give explanatory notes of each verse, and the application; and the Gospels are treated of in the same way. We hope it will be well circulated among teachers.——*Complete Guide to Government Appointments and to the Civil Service Examinations.* By James Hurst, of Her Majesty's Civil Service. Pp. 78. (London: Relfe, 1856.) This little book is by no means what it professes to be, namely, a complete guide to Government appointments. It is nothing of the kind. After a wordy preface, there is an analysis of the Civil Service Commissioners' Report, and useful as far as it goes, though it has been published and republished *ad infinitum.* Then follows a long list of the principal Government offices, omitting all the minor ones, to which candidates who buy the book will alone aspire, and to have given which, with their salaries, might have been of some use. The best part of the

book is that which gives the prescribed subjects of examination required by each Government department. The extracts from the papers are useless, because they do not show for what departments they have been used.——*Lectures to Children on Scripture Doctrines.* By Samuel Green, B.A. Pp. 115. (London: Sunday School Union, 1856.) *Lectures to Children on the Bible.* By Samuel Green, B.A. Pp. 117. (London: Sunday School Union, 1856.) These are good little books, conveying practical lessons of piety, and at the same time are interspersed with pretty anecdotes, which will aid in enforcing those duties which must be taught to every child.

SERIALS RECEIVED.

Frazer's Magazine; British Educator; Titan; Scottish Educational Journal; Educator; L'Abeille; Educational Record; Penny Post; Gentleman's Magazine. [We are glad to hail Mr. Sylvanus Urban evincing a degree of healthful vigour, which reminds us of his best days.] *Lardner's Handbook of Natural Philosophy; Chambers's Educational Course; Modern History; Scripture Geography; Hobson's Choice; Susan; Mary Thomas; The British Soldier.*

Intelligence.

British Association.—At the recent Cheltenham Meeting, in the Section of Political Science, education was an important feature; not only were there able papers on Reformatories by Mr. Barwick Baker and Miss Carpenter,—there was an interesting and instructive paper by the Rev. C. Bromby on National Education. In the Mathematical Section Mr. Grove gave a remarkably clever paper on Correlative Forces; and Professor Whewell and Mr. Symons descanted on the Moon's Motion (disagreeing but slightly thereon); and Col. Sir T. Rawlinson at immense length on Cuneiform Inscriptions. There was a due quota of interesting geology, and a horrifying *exposé* of the effects of strychnine, very instructive in the art of murder made easy. Altogether it was a successful meeting.

Notices.

REDUCED CHARGE FOR ADVERTISEMENTS.

Orders and Advertisements must be sent only *to* Messrs. Groombridge, 5, *Paternoster Row; the latter, from strangers, must be accompanied by a remittance, according to the following scale:—If under* 40 *words,* 3*s.* 6*d.; for every additional ten words,* 6*d.; a whole page,* £2. 2*s.; a half-page, or one column,* £1. 5*s. Ten per cent. discount on all Advertisements inserted more than twice.*

The Journal *will be sent, free of postage, for one year, on receipt of* 6*s.* 6*d. in advance.*

TO CORRESPONDENTS.

*** No other paper on Local Words can be found. We shall be glad of one.

Dr. Lardner is thanked for the offer of his Pamphlet, but it does not carry the argument any further than before. Some able treatises have also reached us, together with Herr von Hompach's voluminous volume, and Mr. Symons's paper at Cheltenham, both against the theory of rotation. The astronomers will eventually find the common sense view of this matter too strong for them, and will have to amend their description of what they admit to be the Moon's motion; and which is demonstrably that of simple translation in a circular orbit, not having a particle of rotation, according to Barlow's definition of it, in his Standard Mathematical Dictionary, as follows:—

"*Rotation;* the motion of the different parts of a solid body about an axis, called the *axis of* rotation, being thus distinguished from the progressive motion of a body about some distant point or centre: thus the diurnal motion of the earth is a motion of rotation, but its annual motion one of revolution." * * *

"When a solid body turns round an axis, retaining its shape and dimensions unaltered, every particle is actually describing a circle round this axis, which axis passes through the centre of the circle, and is perpendicular to its plane."

We owe it to our readers to give them a truce on this subject, strongly recommending those who need further information to read the several able treatises on Kinematics published long ago by Mr. H. Perigal on this subject.

A RATIONAL METHOD OF TEACHING FRACTIONS.

BY CHARLES DACUS HERMANN.

(*Continued from page* 382.)

VII. *Bringing several Fractions to the same Denomination. Adding and subtracting them.*

M. You know already that fractions, which are to be added together or subtracted from one another, must have the same denominator. In the preceding examples only one fraction was to be changed, and brought under the denominator of the other. But in most cases both or all the fractions must be changed; for instance, if we have $\frac{3}{5}+\frac{2}{7}$. Which are the new denominators you can give to the fraction $\frac{3}{5}$ by multiplying the denominator 5?—*A.* Instead of 5 I may get the denominators 10, 15, 20, 25, 30, 35, &c.

M. Which are the denominators to which you can bring the second fraction $\frac{2}{7}$?—*A.* 14, 21, 28, 35, 42, &c.

M. Write down the two lists of denominators, and see which is common to both?—*A.* I find 35 in both lists.

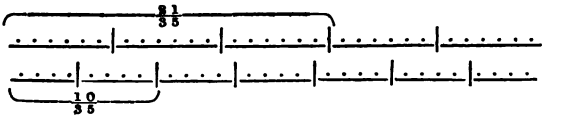
M. Therefore $\frac{3}{5}$ as well as $\frac{2}{7}$ may be changed into 35ths. By which number must you multiply the denominator 5 in order to obtain 35?—*A.* By 7.

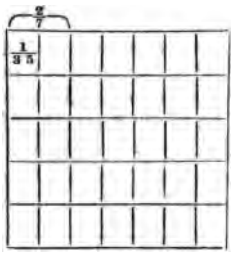
M. 7, which is the denominator of the second fraction. And by which number must you multiply 7 to obtain the same denominator 35?—*A.* By 5.

M. 5, which is the denominator of the first fraction. Now change both fractions and bring them to 35ths, but do not forget to multiply the numerator by the same number by which you must multiply the denominator.—*A.* $\frac{3}{5}=\frac{21}{35}$, $\frac{2}{7}=\frac{10}{35}$.

M. Now add them together.—*A.* $\frac{21}{35}+\frac{10}{35}=\frac{31}{35}$ $\therefore \frac{3}{5}+\frac{2}{7}=\frac{31}{35}$.

M. Here I show you once more on lines and squares that you are right.





M. Let us now add together $\frac{3}{4}+\frac{1}{5}$. [Questions and demonstrations

are to be repeated as in the preceding instance, and, after two or more such additions have been performed, the pupil will easily arrive at the practical rule, that—To find a common denominator for two fractions, we multiply the two given denominators together; and, secondly, in order to reduce the two fractions to this common denominator, we multiply both terms of each fraction by the denominator of the other fraction. Frequent interpellations and illustrations must satisfy the master that his pupil is always aware why he is operating in such a manner, whilst a great number of examples arranged according to their gradual difficulty give to the pupil the necessary skill and practice in solving these problems.]

M. Bring to the same denominator $\frac{1}{2}$ and $\frac{1}{7}$, $\frac{3}{4}$ and $\frac{7}{9}$, $\frac{13}{15}$ and $\frac{5}{28}$. Add together $\frac{1}{3}+\frac{1}{4}$, $\frac{3}{5}+\frac{1}{6}$, $\frac{7}{8}+\frac{5}{10}$, $2\frac{1}{2}+3\frac{4}{5}$, $8s.\ 8\frac{3}{8}d.+15s.\ 9\frac{5}{6}d.$ Subtract $\frac{1}{2}-\frac{1}{6}$, $\frac{5}{8}-\frac{3}{11}$, $27\frac{5}{6}-\frac{3}{4}$, $48\frac{2}{3}-19\frac{5}{7}$, $234\frac{17}{18}-17\frac{15}{20}$, $92\frac{17}{91}-48\frac{23}{93}$, &c.

M. I want you to add together $\frac{2}{3}+\frac{1}{4}+\frac{4}{5}$. We have until now only operated with two fractions. What must we do first to add these fractions together?—*A.* We must give them a common denominator.

M. Bring the first two fractions under the same denominator.—*A.* $\frac{2}{3}=\frac{8}{12}$, $\frac{1}{4}=\frac{3}{12}$.

M. Now we have to add 12ths and 5ths, namely, $\frac{7}{12}+\frac{3}{12}+\frac{4}{5}$. Bring them to one denominator.—*A.* 12ths and 5ths may be reduced to 60ths.

M. How did you find the denominator 12?—*A.* By multiplying the two denominators 3 and 4 together.

M. How did you afterwards find the denominator 60?—*A.* By multiplying 12 by 5.

M. Instead of multiplying 3 first by 4, and the product by 5, you might at once have multiplied 3 by 4×5 or 20, which gives 60; instead of multiplying 4 first by 3, and the product by 5, you might at once have multiplied 4 by 3×5 or 15, which equally gives 60. You see at once that the common denominator is found by multiplying one of the denominators by the product of the two remaining ones, or, what is the same, by multiplying the three denominators together. To give the altered fraction the same value as the original one had, we must, of course, multiply each numerator by the same number by which we multiply its denominator, that is to say—by the product of the remaining denominators. Thus, in the above example each term of the first fraction is so multiplied by 4×5 or 20, each term of the second by 3×5 or 15, each term of the third by 3×4 or 12, which gives the result, $\frac{2}{3}=\frac{40}{60}$, $\frac{1}{4}=\frac{15}{60}$, $\frac{4}{5}=\frac{48}{60}$, and the sum $\frac{2}{3}+\frac{1}{4}+\frac{4}{5}=\frac{103}{60}=1\frac{43}{60}$.* Now let us add in the same way $\frac{2}{3}+\frac{3}{5}+\frac{7}{8}$, then $2\frac{1}{2}+3\frac{4}{7}+2\frac{5}{9}$. The same rule will be good for the addition of more than 3 fractions; the demonstration is the same as above. If there are many fractions, or their terms too great to be easily remembered, we write the fractions under one another, and to the right repeat each numerator with the number by which it is to be multiplied, and the new numerators thus obtained upon which we operate as in the former instances.

---

* For shortness' sake we give the latter part of this demonstration in continuous form, leaving it, as in many other cases, to the master by suitable questions to elicit the same from his pupil.

$$\begin{array}{rl} & \overline{60} \\ \frac{2}{5}\ 2\times 12= & \overline{24} \\ \frac{1}{3}\ 1\times 20= & 20 \\ \frac{3}{4}\ 3\times 15= & 45 \\ \hline 1\frac{29}{60} & 60)89(1 \\ & \underline{60} \\ & 29 \end{array}$$

$$\begin{array}{rl} & \overline{2970} \\ \frac{2}{3}\ 2\times 990= & \overline{1980} \\ \frac{8}{9}\ 8\times 330= & 2640 \\ \frac{7}{11}\ 7\times 270= & 1890 \\ \frac{7}{10}\ 7\times 297= & 2079 \\ \hline \frac{2649}{2970} & 2970)8589(2 \\ & \underline{5940} \\ & 2649 \end{array}$$

$$\begin{array}{rl} & \overline{129600} \\ 8\text{ f. } 5\frac{11}{12}\text{ in. (by } 10800)= & 118800 \\ 13\text{ ,, } 9\frac{5}{8}\text{ ,, (,, } 16200)= & 81000 \\ 9\text{ ,, } 10\frac{7}{10}\text{ ,, (,, } 12960)= & 90720 \\ 5\text{ ,, } 3\frac{8}{9}\text{ ,, (,, } 14400)= & 115200 \\ 8\text{ ,, } 2\frac{11}{15}\text{ ,, (,, } 8640)= & 95040 \\ \hline 45\quad 8\frac{111960}{129600} & 129600)500760(3 \\ & \underline{388800} \\ & 111960 \end{array}$$

VIII. *To find the least common Denominator.*

M. You have seen now that an addition of several fractions which have not the same denominator is a rather long operation, and its complication chiefly arises from the large numbers we have to deal with. It is, therefore, important to see whether we may not in many cases abbreviate our operations, or, in other words, find a smaller common denominator than by multiplying all original ones together. Such cases really occur pretty often; for instance, if we had to add $\frac{1}{2}+\frac{1}{3}+\frac{3}{4}+\frac{5}{6}+\frac{7}{8}+\frac{11}{12}$, instead of using the product of all these denominators, $2\times 3\times 4\times 6\times 8\times 12=13{,}824$, as the new common one, the comparatively small number 24 would do for the same purpose, as all the given fractions may be reduced to 24ths. The question is, therefore, how to find the *least* common denominator. Taking once more the fractions just mentioned, why do you say that 24 may be used as a common denominator for all?—*A.* Because I am able to reduce all to 24ths.

M. How do you do that?—*A.* By multiplying the terms of each fraction; those of $\frac{1}{2}$ by 12, those of $\frac{1}{3}$ by 8, those of $\frac{3}{4}$ by 6, &c.

M. How do you find each of these numbers?—*A.* By dividing 24 by the respective denominator.

M. Or you may say by seeing how many times each respective denominator is contained in 24. If I introduced the fraction $\frac{3}{5}$ into the above series of fractions, would the number 24 then still do for the common denominator?—*A.* No, because I cannot change 5ths into 24ths.

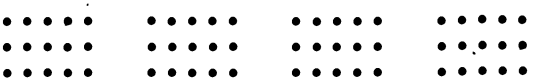
M. Or because 5 are not exactly contained in 24. What is, therefore, requisite for a number to be a common denominator to several fractions?—*A.* The common denominator must exactly contain each special denominator.

M. Or we may say: The common denominator must be a multiple of each original denominator. If we, therefore, have several fractions to bring to the same denominator, we only consider their denominators, and try to find the smallest possible number which contains each of them or is a multiple of each. Before we go any further, let me tell you, that in multiplying several numbers together, the order in which we multiply does not alter the product; thus, 3×7 is the same as 7×3: which you can easily prove by this figure:—

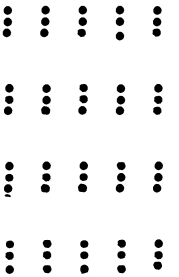
$$\begin{array}{ccccc} \bullet & \bullet & \bullet & \bullet & \bullet \\ \bullet & \bullet & \bullet & \bullet & \bullet \\ \bullet & \bullet & \bullet & \bullet & \bullet \end{array}$$

If we count the points in each horizontal line we find 5, and as there are 3 lines, it makes 3×5 points; but if we count the points in each

vertical line we find 3, and as there are 5 vertical lines, it makes 5×3. If we had to multiply $3 \times 5 \times 4$, we might either first take the 5 points in each horizontal line 4 times, and repeat the product 3 times, thus—



or first multiply the 3 points in each vertical line by 4, and repeat the product 4 times, thus—



The result would be always the same, the number of points being 60. The 4 numbers, 3, 4, 7, 10, we may multiply in 24 different orders, and always obtain the product 840.

M. Let us now bring the following fractions under the least common denominator: $\frac{3}{4}$, $\frac{5}{6}$, $\frac{3}{8}$, $\frac{7}{10}$, $\frac{1}{12}$, $\frac{11}{18}$, and $\frac{13}{20}$. Repeat what we said before about the requisite of a common denominator.—*A.* It must contain or be a multiple of each original denominator.

M. What are the original denominators? Write them in a line.—*A.* 4, 6, 8, 10, 12, 18, 20.

M. Reduce each of them to its lowest factors or numbers by the multiplication of which you obtain it.—*A.* $4=2\times2$, $6=2\times3$, $8=2\times2\times2$, $10=2\times5$, $12=2\times2\times3$, $18=2\times3\times3$, $20=2\times2\times5$.

M. The numbers or factors thus obtained are 2, 2, 2, 3, 2, 2, 2, 2, 5, 2, 2, 3, 2, 3, 3, 2, 2, 5.

M. Which of the original denominators contained the factor 2 most? —*A.* 8 contained it 3 times, for $8=2\times2\times2$.

M. Therefore let 2 stand 3 times in the above series, but strike out all remaining 2's. Which original denominator contained the factor 3 the most?—*A.* 18, for $18=2\times3\times3$.

M. Let the number 3 stand twice in the series, and strike out the remaining ones. The factor 5 is only once required in 10 as well as in 20; we obliterate the last number 5 in our line, which will now look like this:—

2, 2, 2, 3, ~~2~~, ~~2~~, ~~2~~, ~~2~~, 5, ~~2~~, ~~2~~, 3, ~~2~~, ~~3~~, ~~3~~, ~~2~~, ~~2~~, ~~5~~, or 2, 2, 2, 3, 3, 5.

M. Multiply the remaining numbers. I say the product must contain all the original denominators or be a multiple of each. As for the first, or 4, this is evident; for we began multiplying $2\times2=4$, and then multiplied these 4 by several following numbers; of course the product must be a multiple of 4. But as we have seen that the order in which we multiply does not affect the product, we may as well begin multiplying 2×3, which gives 6, the second denominator, or $2\times2\times2=8$,

or $2 \times 2 \times 5 = 20$, the last denominator, and in each case continue to multiply by the remaining numbers. The product must in all cases be a multiple of the first respective product of 6, 8, or 20, that is to say, a multiple of each original denominator. As this operation and demonstration are available for all other fractions, and any number of them, we are justified to give the following rule for finding the least common denominator: Decompose each original denominator into its lowest factors, and put each of these latter down only as often as it occurs in the denominator which contains it most; multiply the numbers thus found, and you have the denominator required. To bring afterwards each original fraction to this denominator we must compare its own denominator with the common one, or see how many times it is contained therein, and with the number thus obtained we multiply its numerator.

M. Bring to the same denomination: $\frac{3}{4}$ and $\frac{1}{6}$; $\frac{5}{6}$, $\frac{3}{20}$ and $\frac{7}{30}$; $\frac{1}{2}$, $\frac{1}{3}$, $\frac{3}{4}$, $\frac{5}{6}$ and $\frac{7}{8}$; $\frac{7}{12}$ and $\frac{19}{40}$; $\frac{8}{21}$, $\frac{7}{24}$, $\frac{9}{16}$, $\frac{8}{9}$ and $\frac{17}{36}$; $\frac{43}{96}$ and $\frac{83}{144}$; $\frac{17}{18}$, $\frac{15}{24}$, $\frac{25}{30}$, $\frac{27}{36}$. Add together $\frac{3}{4}+\frac{5}{6}$, $\frac{7}{12}+\frac{7}{18}$; $\frac{5}{9}+\frac{8}{15}+\frac{11}{18}+\frac{13}{24}+\frac{7}{30}$; $\frac{13}{96}+\frac{87}{100}+\frac{11}{120}+\frac{99}{112}$.

11 lb.	$8\frac{7}{8}$ oz.
3 „	$4\frac{11}{12}$ „
5 „	$3\frac{1}{2}$ „
18 „	$10\frac{13}{16}$ „
7 „	$1\frac{7}{10}$ „

23 cwts.	$68\frac{13}{25}$ lb.
16 „	$7\frac{19}{30}$ „
73 „	$23\frac{11}{15}$ „
8 „	$91\frac{16}{45}$ „
19 „	$4\frac{8}{9}$ „
27 „	$36\frac{29}{50}$ „

Subtract $\frac{11}{12}-\frac{13}{15}$, $\frac{11}{12}-\frac{7}{45}$, $3\frac{5}{6}-\frac{17}{20}$, $294\frac{25}{36}-118\frac{13}{24}$, $6342\frac{247}{500}-3291\frac{327}{950}$.

IX. *To reduce Fractions to lower Terms.*

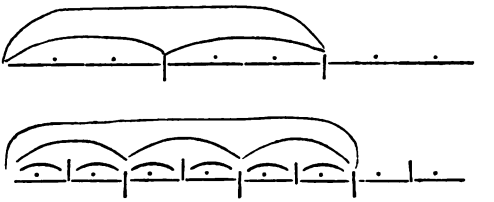
M. We have seen before that it does not affect the value of a fraction if we multiply both its terms by the same number, as $\frac{2}{3}=\frac{4}{6}$, $\frac{5}{7}=\frac{15}{21}$. We may, of course, restore the fractions thus obtained to their original form by again dividing each term by the same number, as $\frac{4}{6}=\frac{2}{3}$, $\frac{15}{21}=\frac{5}{7}$. But you will also easily perceive that in general use we may divide the two terms of a fraction by the same number without altering its value. What does the denominator signify? How does it affect the fraction if I divide the denominator; what effect has this upon the parts?—*A.* The parts become so many times larger, and the fraction therefore increases.

M. What does the numerator signify, and how does it affect the fraction if I divide the numerator?—*A.* I get so many times less of the parts, and therefore the fraction decreases.

M. If I first double the fraction by dividing its denominator, and then take one-half of the doubled fraction, what must be the final result?—*A.* I have as much as in the beginning.

M. And it is the same if I first increase the fraction 3, 4, 5, &c. times, and then take $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, &c., off the product. You will more clearly

perceive the correctness of this statement if I show it on some lines. I say, for instance, $\frac{6}{9}=\frac{2}{3}$, $\frac{12}{16}=\frac{6}{8}=\frac{3}{4}$.



M. This rule is of importance, as it enables us in many cases to reduce fractions to lower terms, which of course renders our operations with them more easy. Suppose now you want to reduce the following fractions to lower terms: $\frac{6}{8}$, $\frac{10}{15}$, $\frac{14}{21}$, $\frac{20}{25}$, $\frac{370}{850}$, $\frac{300}{500}$, $\frac{94}{100}$, $\frac{735}{840}$, $\frac{4312}{8784}$.

X. *To recognize certain Divisors or Measures of Numbers.*

M. What is the first question you ask yourself in all these examples? —*A.* By what number can I divide both terms of that fraction?

M. In many cases, particularly with fractions the terms of which are low, this is easily found if one only knows the tables of multiplication. But it is very useful to know how to reduce fractions with large terms; and there are some outward signs in many numbers by which you may recognize whether a reduction be possible or not. As you already stated, the question always is: by which number can I divide the numerator and denominator without leaving a remainder. First for the number 2. Each large number consists of units, tens, hundreds, thousands, and so forth. 7384=4 units, 8 tens, 3 hundreds, 7 thousands. Now 10 and any number of tens are always divisible by 2 without a remainder; 100 and any multiple of 100, 1,000 and any multiple of 1,000, and so forth, leave no remainder. I have, therefore, only to consider the units. If they leave no remainder in the division by 2, the whole number cannot leave any. What are the units that can be exactly divided by 2?—*A.* 2, 4, 6, 8, 0.

M. Therefore I say: A number may be divided by 2 without a remainder if the units are either 2, 4, 6, 8, or 0; in other words, if the last figure is an even number. Say and write many large numbers which you may divide by 2 without a remainder. Write fractions with large terms that may be reduced by 2.—The number 4.

M. First observe that 100, 1,000, 10,000, &c., are exactly divisible by 4; we have, therefore, only to examine the tens and units, or the two last figures. If they exactly contain 4, the whole number will leave no remainder.

M. Say and write down what may be the two last figures of a number that the whole may be easily divisible by 4. Begin with 00, 04, 08, 12, &c. Write large numbers and fractions as above. To see whether we can exactly divide by 8, we have to consider in the same way and

for similar reasons the last three figures of the number; we might even go on with 16 and 32, but this would scarcely be of any practical use.

M. Let us now find out when we may divide a number by 5 without leaving a rest? Can you tell me which of its figures we only consider? The pupil will easily discover that, as 10, 100, and all their multiples are divisible by 5, the last figure of a number is alone of importance in this respect, and that if it be either 5 or 0, the whole number leaves no remainder in the division. The cases for 10, 100, 1,000, &c., are quite as easily discovered and explained; the pupil must only be induced to state the reasons for each rule, and then give many instances of large numbers and fractions as above.—The numbers 9 and 3.

M. We are now going to find an outward sign by which we ascertain whether a given number be divisible by 9. Divide 1, 10, 100, 1,000, 10,000, &c., by 9, and only state what remains?—*A.* In all these cases the remainder is 1.

M. Now divide 2, 20, 200, 2,000, 20,000, by 9, and say what remains?—*A.* In all these cases I get 2 for remainder.

M. Divide 3, 30, 300, 3,000, &c.—4, 40, 400, 4,000, &c.—5, 50, 500, 5,000, &c., by 9. The pupil will find the respective remainders, 3, 4, 5, &c.

M. Now let us consider a large number; for instance, 67,545. This number, as it is written, consists of 5 parts, *i. e.* 5 units, 4 tens, 5 hundreds, 7 thousands, and 6 tens of thousands. Divide each of these parts by 9, and state what are the remainders.—*A.* These will be 5, 4, 5, 7, and 6.

M. Add them together.—*A.* The sum is 27.

M. Is 27 divisible by 9?—*A.* It is.

M. Then I say: The whole number having already been divided by 9, except these remainders, and these remainders being exactly divisible by 9, the whole number must be so; and if you try, you will find that it really is so. Let us now consider the number 478,386; name the single parts it consists of; state the remainder left in the division of each part by 9; add the remainders together, and draw your conclusion from it. After some practice the pupil will find that the single figures contained in a number represent the remainders left in the divisions by 9, and the rule is: If the sum of the single figures of which a number consists is divisible by 9, the whole number is so.

Observation.—In order not to complicate the rule and operation it will be better to regard the figures 9 occurring in a number as remainders, as if we had $9 \div 9 = 0 + 9$ left, $90 \div 9 = 9 + 9$ over, $900 \div 9 = 99 + 9$ over. The same observation applies to the number 3, for which the same considerations and demonstrations are to be made as for 9, considering 3, 4, 5, &c., as remainders of a division not completely finished, as if it were, for instance, $3 \div 3 = 0 + 3$ over, $4 \div 3 = 0 + 4$ over, $50 \div 3 = 15 + 5$ over, $500 \div 3 = 165 + 5$ over, $7{,}000 \div 3 = 2{,}331 + 7$ over, &c. Now write many numbers which exactly contain 9, and fractions which may be reduced by 9; then the same with 3.

XI. *To find a Common Measure for two Numbers.*

M. The rules which we have found about dividing numbers without remainder by 2, 4, 8, 5, 10, 100, 9 and 3, are available for many cases;

but very often one term of the fraction only is divisible, and then we cannot reduce it to lower terms. There are, on the other hand, fractions the terms of which have a common divisor (or measure, as we often call it), such as 7, 13, 23, 37, but for these divisors or measures there exists no outward sign as for 2, 4, 8, 9, and the others. We have, however, a means of ascertaining whether the two terms of a fraction, or any two numbers given, may both be divided by the same number without leaving a remainder. As you would not be able to find it out yourselves I must show it to you, but will afterwards try to explain its correctness. The rule is: Divide the larger of the two numbers by the smaller one, this one by the remainder, the first remainder by the second, the second by the third, and so forth. The last divisor is the common divisor or measure for the original two numbers. For instance, I want to know whether the fraction $\frac{1209}{1417}$ can be reduced to lower terms, or whether 1209 and 1417 have a common measure. The operation stands thus (you had better write the divisor in this case on the left side):—

$$
\begin{array}{l}
1209 \div 1417 = 1 \\
\quad\;\; 1209 \\
\hline
\quad 208 \div 1209 = 5 \\
\qquad\;\; 1040 \\
\hline
\qquad 169 \div 208 = 1 \\
\qquad\quad\;\; 169 \\
\hline
\qquad\quad 39 \div 169 = 4 \\
\qquad\qquad\;\; 156 \\
\hline
\qquad\qquad 13 \div 39 = 3 \\
\qquad\qquad\quad\;\; 39 \\
\hline
\qquad\qquad\quad\;\; \cdot\cdot
\end{array}
$$

The last divisor being 13, I say this number is the common measure for 1209 and 1417. A trial will at once show that I am right, for $1209 \div 13 = 93$, $1417 \div 13 = 109$. But you might, without trying first, infer from mere reasoning that it must come right; and as the same course of reasoning is available for all other cases, it shows the correctness of the rule given. The last divisor 13 is exactly contained in 39; 169 containing $4 \times 39 + 13$, both of which numbers, 39 and 13, exactly contain 13, 169 must likewise exactly contain 13; $208 = 169 + 39$, both which parts are multiples of 13, as we have seen, and therefore 208 contains 13; $1209 = 5 \times 208 + 169$, and is for the same reason a multiple of 13; and lastly, $1417 = 1209 + 208$, which two numbers exactly contain 13 without a remainder, and therefore 1417, as well as 1209, must exactly contain 13. Find now by the same rule the common measure for 3553 and 5321, 11,421 and 26,461. Reduce the fractions, $\frac{9961}{17769}$, $\frac{4433}{9969}$, $\frac{1411}{2227}$.

XII. *Applications of the preceding Rules.*

M. You will often have occasion to apply the rules for reducing fractions to lower terms after addition, subtraction, and particularly after

multiplication of fractions. I want you now to complete the following series, which likewise will often admit of such reductions. [The pupil frequently says these tables *vivâ voce*, forwards and backwards and promiscuously, before writing them.]

1 day $= \frac{1}{7}$ week.	1d. $= \frac{1}{12}$/.	1/$= \frac{1}{20}$ £.
2 days $= \frac{2}{7}$ „	2d. $= \frac{2}{12}$/$= \frac{1}{6}$/.	2/$= \frac{2}{20} = \frac{1}{10}$ £.
3 „ $= \frac{3}{7}$ „	3d. $= \frac{3}{12}$/$= \frac{1}{4}$/.	3/$= \frac{3}{20}$ £.
up to 7 days.	up to 12d.	4/$= \frac{4}{20}$ £.
		up to 20/.

1 day $= \frac{1}{30}$ month.	1 min. $= \frac{1}{60}$ h.	1 h. $= \frac{1}{24}$ day.
2 days $= \frac{2}{30} = \frac{1}{15}$ m.	2 „ $= \frac{2}{60}$ or $\frac{1}{30}$ h.	2 h. $= \frac{2}{24} = \frac{1}{12}$ d.
	up to 20 min.	up to 24 h.
	and then from	
	40 min. up to 60 min.	

1 in. $= \frac{1}{12}$ f.	1d. $= \frac{1}{240}$ £.	1 day $= \frac{1}{365}$ year,
2 „ $= \frac{2}{12} = \frac{1}{6}$ f.	2d. $= \frac{2}{240} = \frac{1}{120}$ £.	2 „ $= \frac{2}{365}$ „
3 „ $= \frac{3}{12} = \frac{1}{4}$ f.	3d. $= \frac{3}{240} = \frac{1}{80}$ £.	3 „ = &c. to 30 days,
&c.	4d. &c.	then from 80 to 100 days.

1 oz. $= \frac{1}{16}$ lb.	1 oz. $= \frac{1}{1728}$ cwt.
2 „ $= \frac{2}{16} = \frac{1}{8}$ lb.	2 „ $= \frac{2}{1728} = \frac{1}{864}$ cwt.
3 „ $= \frac{3}{16}$	3 „ &c. and many promiscuous examples.

(*To be continued.*)

HUMILITY ESSENTIAL TO A TEACHER.—Nothing will impede a Master's progress more than vanity or pride. It will be at once detected, and stand in strange contrast with the lessons which it is his business to impart. It is a great blemish in any character, but in one devoted to teaching, it is most incongruous. The end of all our learning should be a conviction that our store of knowledge is but infinitesimal, compared with the vast treasures that are above us and around us.

How often does pride shut a man's eyes and ears to lessons which he might learn, but which he will not even condescend to read, because they come from sources which he considers beneath his notice.

A master, keenly alive to the interests of his school, will have his own mind open to receive instruction, let the source from which it comes be ever so lowly. Many a one who stands high in the estimation of those around him, does so, not so much from his great abilities as from the fact that he has used his natural gifts in a spirit of meekness and humility.—*From an able Address on the Qualifications of the Church of England Schoolmaster, by the Rev. John Freeman, Rural Dean.*

DRAWING.—No. 1.

BY way of preface I would observe that it is not my intention to give lessons on any particular branch of the art of drawing, so much as a general dissertation of the whole, tending to show how much more profitable and useful, conducive to afford pleasure, and important as a branch of education it is than is generally supposed.

Drawing is an imitative art by which the forms and positions of objects are variously represented on a plain surface, and its great importance is most clearly seen when we reflect that in most of our manufactures that takes the primary step. For the beautiful designs which now decorate our dwellings in cornice, plaster, iron, wood, and stone, and our persons in woollen and silks, &c., are we in the first place indebted to the draughtsman or designer.

How rude and barbarous would be the appearance of our dwellings, independently of the rudeness of their appearance—how much wanting would they be in comfort and economy of arrangement or design, were it not for the architect. Little would be the use of the existence of bricklayers, carpenters, and mechanics generally, without the assistance of the architect, for I regret to state, the majority of our mechanics are totally wanting in a knowledge of drawing. They do not appear to see how it would assist and facilitate their operations, nor to understand that by a clear knowledge of the theory the practice is half effected.

Dr. Ure remarks "that the mode in which taste is cultivated in France is well worthy of study and imitation in this country. For example, at Lyons, the great seat of the silk-manufacture; among the weavers of that city, the children and all persons, busied in devising patterns, much attention is paid to everything connected with the picturesque and beautiful. Weavers may be seen in their holiday attire, at leisure times, gathering flowers, grouping them in the most engaging and fascinating manner. Hence it is that they are continually suggesting new designs to their employers, and are the fruitful source of elegant patterns; and from this it may be clearly understood how the French flower-patterns are remarkably free from all incongruities, being copied from nature with scientific precision."

The advantages of such a course are obvious and many; not only are the weavers themselves benefited, but their employers, and even the nation at large,—making their designs in silk pre-eminent above those of all other nations, causing a greater demand for them, and thus bringing capital into the country. And to what may these high and great advantages be traced but to the arts, drawing in particular, and the principles of design, holding a high position amongst the subjects forming the basis of French school education, preparing the minds of the pupils to perceive and appreciate the beautiful in form and colour so abundant in most natural objects; and hence the beauties of the French designs, as observed, remarked by Dr. Ure. But I am induced to hope, from the establishment of schools of design not only in London, but in most of our principal manufacturing towns, that we shall soon successfully compete with our Gallic friends both in form and harmonious colouring.

The first step preparatory to the execution of any great design,

whether it be to erect a bridge, form a railroad, build a church, or any other great building, whether intended for civil, military, or religious service, is to draw the plans, sections, and elevations.

As a means of elevating our tastes and desires, and thereby embellishing what would be without that and the kindred arts—music and poetry—a somewhat dull and uninteresting existence, the art of drawing, as I will endeavour to show, occupies a very prominent position.

The person who has acquired a knowledge of botany feels a pleasure and interest in the various little modest wild flowers that he meets with in his rural rambles that he even did not notice before. He now takes them up, marks their various beauties, studies them with attention and delight, amazed at his want of perception in not discovering their claims upon his attention before. So it is with drawing, and it is deeply to be regretted that we have passed by, or looked coldly on, that which has the power of affording us so much delight, for the want of a little refinement, our minds trained to the appreciation of the beautiful; but so it is with many who pass by the most sublime pieces of landscape-scenery without any emotion or real pleasure. Many persons walk in the country abstractedly engaged in their own dull—maybe, disagreeable—thoughts, insensible of so much around them calling for their admiration.

The excuse most usually advanced for not studying the art is, "That I have no taste, and consequently do not feel any interest in it;" but it has been felt by most persons that they care but very little for any game, amusement, or accomplishment, that they are almost totally unacquainted with; but as soon as they have got over the elementary drudgery, and begin to understand them, they feel a pleasure and interest which both delights and astonishes them: and in the same manner they who have stedfastly studied the art of drawing, discover a source of innocent pleasure and gratification in external nature, perceiving beauties which they hitherto had not remarked.

One very great advantage arising from the study of drawing is, that it gives an acute sense of observation; objects, formerly passed by with a callous eye and vacant mind, then assume a character and interest which arrest attention and awaken thought; and we are rendered capable of looking with pleasure and interest on the beauties of nature, instead of indifference. In support of which opinion, I will quote Dr. Johnson, who remarks, "He that enlarges his curiosity after the works of nature, demonstrably multiplies his inlets to happiness; therefore we should cherish ardour in the pursuit of knowledge, and remember that a blighted spring makes but a barren harvest, and that the vernal flowers, however beautiful and gay, are only intended by nature as preparations to autumnal fruits."

It will be remembered by my readers that I remarked, that the study of drawing from nature afforded an acute sense of observation: so have I experienced; and which if generally the case, what an inducement is that alone for studying the art; for from observation springs contemplation, an attribute peculiar to man, which induces us to dive *into* the causes and effects of things; without it, memory and observation would be in a great part useless, for we can profit but little from what we see, unless we think rightly.

It is contemplation which especially distinguishes great minds, and separates them from the herd of superficial and shallow thinkers. If you know a man superior to the rest of your acquaintance, be sure he is habituated to contemplation; it is that which has given strength to his reason, and depth to his judgment. Shakspeare remarks of the contemplative man, as finding

> "Tongues in trees, books in the running brooks,
> Sermons in stones, and good in everything;"

and yet to effect so great a desideratum, for an adult, but a few elementary lessons are required for the practice of the eye and hand, gradually progressing into perspective, theoretical, and practical; and then you are prepared for the grand climax—the study of sketching from nature, the more beneficial (intellectually speaking) and delightful of all pursuits, whether it be landscape, an animal, or the human countenance; for we cannot contemplate either without being strongly impressed with the greatness and goodness of the Creator, in so fashioning His creatures, that however varied the form may be, all are equally to be admired, as being most suitable for their respective requirements.

Sept. 4th, 1856. WILLIAM HOBDAY.

BRIGHTON AND SUSSEX CHURCH SCHOOLMASTERS' ASSOCIATION.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

BRIGHTON, *Aug.* 19, 1856.

SIR,—We feel that the necessity for a provision for aged and decayed teachers, and for necessitous widows and orphans of schoolmasters, is acknowledged by all. We also consider that nothing has yet been done because no practical proposition has been made.

The subject having been brought before this Association at its last monthly meeting, held on the 16th instant, it was then resolved that the committee should be requested to communicate with the various educational periodicals (as the best means of reaching the great body of teachers in England), announcing its willingness and anxiety to co-operate with other bodies of teachers in any well-digested plan for the furtherance of this object.

We consider it essential that such should be a national undertaking, and therefore do not presume to make any detailed proposal on the matter, but respectfully suggest that our fellow-labourers should take the subject into consideration, and express their readiness to co-operate in the work, in order that a general meeting may be convened in London for the purpose of deciding upon some definite plan of operation.

We are, Sir, your obedient servants,

THE COMMITTEE OF THE BRIGHTON AND SUSSEX CHURCH SCHOOLMASTERS' ASSOCIATION.

[We wish this communication had been addressed to us earlier in last month. We shall be happy to abet this laudable object, and insert the notice and resolutions of the proposed meeting gratuitously.—ED. E. J. E.]

ON THE REASONS FOR DESCRIBING THE MOON'S MOTION AS A MOTION ABOUT HER AXIS.

TO THE REVEREND DR. WHEWELL, V.P.R.S., &c.

REVEREND SIR, *Sept. 4th*, 1856.

YOU preceded me in reading a paper on the Lunar Motion, at the late Meeting of the British Association at Cheltenham, with some *extempore* remarks on the subject, of which I have just received a printed report with the above heading, inserted in the last number of the *Mechanics' Magazine;* and, I presume, with your knowledge and sanction.

The demonstration I then submitted to the Section, that the Moon has no axial rotation, was assailed, as you are aware, by repeated interruptions on the part of one or two persons, who, except by bald and wrathful contradiction, attempted no answer to my argument. Those interruptions, however, deterred me from being the means of prolonging an exhibition of conduct not conducive to the public esteem for science, by any sufficient comments on your lecture. I need therefore make no apology for transferring your remarks into the columns of "The English Journal of Education," with some replies to the very few points on which you differ from my views; these points of difference, relating in no degree to facts, or the motion of the Moon, as described by me and controverted by many of my opponents, but simply to the right of astronomers so far to twist the ordinary application of the term "rotation" as to apply it to that motion, and thus indorse its misdescription.

Here is the report of your remarks, which I have divided into paragraphs, numbered *seriatim* for ease of reference:—

"*On the Reasons for Describing the Moon's Motion as a Motion about her Axis.*

"BY THE REV. DR. WHEWELL.*

(1.) "The Moon's motion may be described, in one way among others, by saying that in each month she revolves about the Earth nearly in one plane, turning always the same face to the Earth. But if a body were rigidly fastened to a rigid radius which revolved about the Earth nearly in one plane, such a body would during that revolution turn always the same plane to the Earth. (2.) Now, would such a body be described as revolving upon its axis during such a revolution? By many persons it would not be so described. (3.) But the Moon is described by astronomers as revolving about her axis in the course of every month. What are the reasons for such a description? (4.) The reasons are briefly these:—I. The Moon is not fastened to the Earth rigidly, nor fastened at all. II. The Moon being thus detached, the reference of the Moon to the Earth as a centre of revolution is arbitrary. III. The other celestial bodies which revolve about centres also revolve about their axes, and the rule regarding them as not revolving about their axes when they turn always the same face to the centre, would produce confusion; it would, for instance, compel me to say that the Earth revolves upon her axis 365¼ times in a year, whereas with regard to the fixed stars she revolves 366¼ times. (5.) Also, when a body revolves about a centre, turning always the same face to the centre, then is mechanical force required to make it so turn; but no mechanical force is required to make it remain parallel to itself while it revolves round a centre.

(6.) "I. The Moon is *not* fastened to the Earth rigidly, as the ancients supposed when they invented the crystalline spheres as the mechanism by which the heavenly bodies revolve, and by which they are connected with one another; and as the body repre-

* British Association, 1856.

senting the Moon is fastened to the body representing the Earth in machines made by man. (7.) The Moon in nature is entirely detached from the Earth, and the fact of her turning the same face to the Earth does not at all form the machinery of her monthly revolution. (8.) Hence it is ascribed to a separate motion, her monthly revolution on her axis.

(9.) "II. The reference of the Moon to the Earth is *arbitrary*. The Moon revolves about the Earth, but she revolves about the Sun also. She revolves about the Sun *more* than about the Earth; for when she is between the Sun and the Earth, her face is concave to the Sun and convex to the Earth's orbit. (10.) There are, in some respects, stronger reasons for regarding her as fastened to the Sun than as fastened to the Earth. (11.) But in truth she is not fastened at all; and the simplest way is to regard her as quite detached, and to consider her motion by which she turns her face different ways as quite separate from the motion by which she revolves about any centre.

(12.) "III. The other celestial bodies also revolve about their axes, and especially the Earth. (13.) All persons agree in thus expressing the fact in the case of the Earth; and as there are 365 days in the year, the Earth revolves 365 times on her axis with reference to the Sun. By doing this she revolves 366 times on her axis with reference to the fixed stars.

(14.) "IV. It may easily be shown experimentally that mechanical force is requisite in order that a body revolving about another may always turn the same face to the other. (15.) The following is one way of doing this. Let a cup containing water be fastened at the extremity of an arm which revolves in a horizontal plane about a centre. The cup will, of course, always turn the same side to the centre, being forced to do so by the rigid connection of the parts. (16.) But the water in the cup, not having any rigid connection with the centre, will not turn the same side to the centre during the revolution of the cup. (17.) This will appear if a straw be made to float upon the surface of the water; for the straw will always point in the same direction with regard to surrounding objects, and not with regard to the centre. (18.) If the motion is very rapid or long continued, a slight deviation of the straw from its original position will be produced by the friction of the water against the sides of the cup."

PARS. 1 and 2. In these you affirm nearly all that I contend for, and my opponents deny. In PAR. 3 you cite what I venture to think the erroneous dictum of the astronomers; and in PAR. 4 you give reasons why you agree with them also, in stating the Moon's motion to comprise rotation *about her own axis*. Your first reason,—that inasmuch as the Moon is not fastened to the Earth, any reference of her motion to it is arbitrary, I deny. Nothing is arbitrary which nature has bound by fixed laws. The Moon's orbital path round the Earth, its ellipticity, her distances from the Earth at each point in that orbit, her librations, and the face she presents to the Earth, are all determinate and immutable, and bear an unvarying relation to the Earth. On what conceivable ground, permit me to ask, do you therefore, as a mathematician and an English scholar, say that such reference is "arbitrary" in any sense of the word? I also venture to inquire what is your authority for affirming that the other celestial bodies which revolve round centres (including, of course, the Moons of the most distant planets) rotate on their axes? How do you know this? And if you do not know it, why do you, placed at the head of one of our noblest seminaries of sound learning, assert it? Mathematicians, who have endeavoured in this discussion to silence inquiry and sneer at inquirers, should at least use dogmas which have some ostensible foundation in facts.

You object to be debarred from saying that the Moon rotates, because you would be "compelled to say that the Earth revolves [rotates?] upon her axis $365\frac{1}{4}$ times in a year, whereas with regard to the fixed stars she revolves $366\frac{1}{4}$ times." Pray, is not the former statement true? Will you venture to contradict it? And if it be true, why do you object

to be compelled to say it? You tell us it would "produce confusion:" the reason, and the only reason, being that the contrary has been held by astronomers; and I quite agree with you that it would confound them, were you and others to be "compelled to say" what is the simple truth, namely, that while the Moon does not rotate about her own axis, the Earth does so $365\frac{1}{4}$ times in a year, with reference to the Sun, which is the only common-sense way of determining her rotation—inasmuch as the Sun, instead of any fixed star, is at the focus of the Earth's orbit. The Sun's daily appulses to the meridian are obviously the measure of the Earth's rotation, and of these there are 365, and not 366. In other words, if it be true that the Sun, instead of revolving in the ecliptic, occupies a fixed place in the centre of the Earth's orbit, the Earth's rotations must be identical in number with the 365 presentations of the same face or point in her circumference to the Sun, and not to any fixed star outside her orbit. If the Earth makes the additional rotation ascribed to her, it must be a latent one, possessed of the singular property of making no additional presentation of face (like the other 365) to the Sun. Now this is precisely the one rotation which the astronomers and Dr. Whewell persist in ascribing to the Moon; and I am free to admit, that to deny the one is to confound the other: in fact, one blunder is upheld to support the other. The reason, as you well know, why there are $366\frac{1}{4}$ sidereal days (as they are incorrectly termed) is simply that, owing to the Earth's orbital revolution, she presents the same point to the same fixed star (or, in other words, its transit over her meridian happens) in a shorter time than that in which she completes her rotation on her axis. They are, in fact, short days, and incomplete rotations. These diurnal short quantities make up in the year one additional sidereal day. To an observer in a fixed star the Earth, of course, therefore presents the same semi-cycle or side 366 times in a year, because in her orbital revolution she has turned herself once round in addition to her axial rotations. But if she were at rest in space, her axial rotation continuing precisely as it now does, it is manifest, that whilst to the Sun she would give exactly the same 365 presentations of the same face she does now, and have the same number of days and nights, she would give one presentation less to the fixed star. Now, simply because this orbital revolution has, *quoad* an external object, one property in common with rotation, is it not monstrous to assert their identity? I cannot help thinking that the time is at hand when it will be deemed better for science, better for learners, and not derogatory to teachers, to be "compelled" to say what is true; even though we sacrifice cherished dogmas to facts, instead of gainsaying facts for fear they should confound dogmas.

In PARS. 6 and 7 you again affirm twice that the Moon is not attached to the Earth,—a fact, I am sure, that nobody disputes; though you correctly showed how similar was her motion to a revolving body having such rigid connection with the centre of its orbit, by illustrating her motion at Cheltenham with a tin ladle fastened by the handle to a pivot, a machine which I presume was "made by man."

I am unable to perceive how the conclusion in PAR. 8 follows from the premise in PAR. 7. If you mean by "machinery" anything comprising a rigid connection, there is no such "machinery" known to astronomy, and there is no logic in your "reason;" for the same fact

will apply to all the motions of heavenly bodies alike. If you mean that the revolution of the Moon with the same face to the centre is necessarily the result of two separate motions, you are simply begging the question at issue, and assuming that the parallel motion is the only revolution without rotation, a point we shall come to presently.

I have read PAR. 9 over and over without any certainty of what you mean. Doubtless we may examine the Moon's movement in space and round the Sun, as well as round the Earth, but these are distinct things. The disputed dictum as to rotation is confined by the very terms of those who wield it to the Moon's motion relatively to the Earth; her circum-solar motion (as I replied to you at Cheltenham) is not in dispute; neither will it help you to encumber the discussion with it. The Moon moves, and each particle of her moves, solely in concentric rings (or rather ellipses) *round the Earth*, and in no other manner, and describing round the Earth no other path, courses, rings, or curves of any kind or description; while no point in the Moon describes a ring round any other point within her. This you are both too scientific and too truthful to deny. You are equally unable to deny that whenever a body rotates round its own axis, or about an axis within it, each particle in it must describe, with the rest, concentric circles round that axis. In the Moon none does so: whilst no part of this side of her ever moves or revolves round her axis or centre. Nor can you assign any relation which any point in the Moon bears to what is called her axis more than to any other point in her. All points in the Moon move with angular velocities proportioned only to their respective distances from the centre of her orbit? Would this be so had she any axial rotation? It would not.

These are utterly distinct dynamical and geometrical properties, and the two motions thus distinguished can, I submit, with no more propriety be called by the one term of "rotation" than can an ellipse be called a circle. To do so were indeed to introduce "confusion worse confounded." It would not only upset the established definition of Barlow,* in his "Mathematical Dictionary," but it would introduce a jumble into the technology of mechanics, as well as astronomy, which *practical* mathematicians may truly regard with the "scientific horror" affected by those who cram men for honours by the aid of formulæ of which they rarely understand the elementary principles. De Poinsot's definition has introduced a mischievous heresy on this point; and every

---

* Common sense and the reverse in definitions were seldom better contrasted than in this and De Poinsot's definitions. Here they are:—

"*Rotation;* the motion of the different parts of a solid body about an axis, called the *axis of* rotation, being thus distinguished from the progressive motion of a body about some distant point or centre: thus the diurnal motion of the earth is a motion of rotation, but its annual motion one of revolution." * * *

"When a solid body turns round an axis, retaining its shape and dimensions unaltered, every particle is actually describing a circle round this axis, which axis passes through the centre of the circle, and is perpendicular to its plane."—*Barlow.*

"*There is no rotation* when one face or a determinate section of the moving body remains constantly parallel to itself; *there is,* on the contrary, *rotation,* in the same time as the revolution, when the moving body turns constantly the same face towards the central body. This second case is that of the satellites, in moving round about their primaries."—*Traité de Mécanique, par M. S. D. Poisson, 2nd edition, Tome II., pp.* 179—180.

man who has had a common-sense mathematical education regards as a pedantic folly a definition which necessarily leads to the conclusion that if A revolves round B, B being a fixed point, B has rotated round A; so that the Sun rotates round the Earth.* This it is which has led to the ingenuous admission of Dr. Lardner that the Peak of Teneriffe and each individual, &c. &c., rotate on their own separate axes. The scientific writer of an anonymous pamphlet at Edinburgh † reduces this offshoot of science run mad to its climax of absurdity in the following well-put illustration :—

"They who maintain the established kindred doctrines on these three points must be prepared to assent to, and affirm, the monstrous proposition that the radius of an orbit, or the spoke of a wheel, nay, even the stick twirled round in the hand, possesses the marvellous property of turning round on both ends at once, and describing at the same time two separate circles, round different centres, separated from each other by its whole length!"

You seem to derive great comfort from the Moon's undulating path in space round the Sun. I repeat that this will not help the astronomers one bit. You may just as well attempt to eke out an argument against the palpable fact that a fly flies round and round your head in a railway-carriage, or with a given motion, because it is at the same time moving through space in nearly a straight line from Cambridge to London. I wish you had given your reasons for saying that the Moon revolves *more* about the Sun than about the Earth: though wholly irrelevant to the argument, they must be at least curious. But however we may lament the scantiness of your information on this and some other points, no such complaint can attach to your assurance that the heavenly bodies are not fastened to each other. We are assured of this for the fifth time in PAR. 11.

In PAR. 13 you revert to the solar and sidereal days; and having stated the number of the solar days correctly, you add that "the Earth *revolves* [I presume you mean rotates] 366 *times on her axis with reference to the fixed stars.*" I have already endeavoured to show you that she does not: a revolution or rotation means a *complete* revolution or rotation: if the revolution or rotation of a body *in motion of translation* be measured by the interval of time which any point on it occupies in twice presenting itself to another external point *at rest*, any child will perceive that such measurement cannot be equal to the period of a full rotation, the angular distance having changed.

The concluding paragraphs of your paper merely repeat the experiment by which Galileo arrived at the conclusion that a body revolving round a distant centre, preserving its parallelism, and presenting the same face to an external point and different faces to the centre of its orbit, did *not* rotate. Your argument is, that since this manner of orbital revolution is not rotation, the lunar motion must be. In the first place, this is a *non sequitur*; there is no physical impossibility in two or more modes of turning in an orbit without rotation. Mr. H. Perigal, Mr. Hopkins, Mr. D. Mushet, and the author of the Edinburgh tracts, and I dare say many other far abler reasoners than myself, have over and over again demolished this fallacy.

---

* Hymer's Elements of Astronomy are, I believe, founded on this doctrine.

† "Considerations on the Established Doctrines concerning the Moon's Rotation." *Armour, Edinb.* 1856.

Your water experiment proves nothing. Admitting, for the sake of argument, the immobility of the water, and that it preserves its parallelism, and, if you will, that it does not turn like the Moon, how does that prove that the Moon *rotates on her own axis?* There is really nothing to grapple with in an illustration and argument so utterly irrelevant. Motions in mechanics being phenomena resulting from forces, the motion of the Moon is undeniably (as you assert in PAR. 14) the result of mechanical force. But of what kind of force, and of how many, you prudently omit saying. If I am right in the geometrical phenomena I have above ascribed to the relative motions of the different particles in the Moon, as being distinct from those which are inseparable from rotation, equally distinct are the mechanical forces which respectively produce them. Mathematical definitions have long been vague and unsatisfactory; but the abuse which assigns the same term to two distinct motions, is, I believe, unequalled; and not only detrimental, but discreditable to science. I could confirm this remark by the manner in which "scientific men," in their correspondence with me on this subject, have contradicted each other.

In conclusion, if it had been merely affirmed that the Moon rotated round the centre of her orbit, it would have been useless to contest that merely verbal misuse of the term rotate; but it is gravely asserted that the Moon rotates on her own axis once in addition to her orbital revolution: and this is gravely assigned as the cause of her presenting the same face to the Earth, and the synchronism of these double and distinct movements is said to be an extraordinary coincidence (instead of a single motion). Since reverend philosophers at scientific associations get into very unphilosophical passions because these dogmas are "marred and murdered," it is high time that the growing requirements of common sense should be respected, and plain teaching vindicated in high places; so that such errors may be calmly disproved, firmly denounced, and completely exploded.

It is no matter of mere verbal difference. You and I heard it openly declared from the platform of the Mathematical Section at the last British Association, that the Moon rotated on her axis as a peg-top spins. I perfectly acquit you of any direct assent to such a statement; but before you, holding the high station which you worthily fill in the University of Cambridge, indirectly support the men who are thus teaching the elements of two noble sciences, of which you are bound to conserve the purity, I humbly submit that you should be prepared with more cogent reasons for such countenance, than the remarks you volunteered in behalf of the doctrine that the Moon rotates round her own axis at the Cheltenham meeting.

I am, Reverend Sir, your obedient servant,

JELINGER SYMONS, B.A. Cant.

FEMALE EDUCATION.—No. 3.

IN a preceding paper we have endeavoured to point out how woman should cultivate her heart and understanding, and what habits of study will be most conducive to that end. There is, however, another branch of the subject to which we would gladly call attention in a concluding article—the manner in which she should guard the hearts and minds of others; more especially those of the younger members of her own sex, whose real education is generally committed to her care.

It is a very different thing teaching oneself, and teaching others; the latter duty requiring a far greater amount of patience and perseverance than the former.

In commencing the education of a child, we must keep always in view our one great object; which is neither to make a well-taught parrot, nor a moving automaton, but a sensible, intelligent woman, fitted to take her place in society and fulfil the duties of her station.

The mind of a child is pliant and easily moulded; let us be careful that we form it aright; remembering always how responsible is the situation in which we are placed, and that the future happiness of that child may probably depend upon the care we have bestowed upon her early years. When we look upon the subject in this point of view, we shall be struck with its vast importance, and strive more earnestly to fulfil its duties aright; recollecting that we are forming a creature not merely for time, but for eternity. Let us put our whole hearts in our work, and then we may humbly trust that the blessing of God will accompany our labours.

To be able to teach well we must be thoroughly masters of our subject, and in explaining it should endeavour to do so in as few and simple words as we can. A long history confuses the listener, who forgets the first part in listening to the conclusion. We must never, however, be weary of repeating the same lessons again and again, until thoroughly comprehended by our pupils. Precept must be upon precept, line upon line, here a little, and there a little; remembering that what seems very clear to us, may be more difficult of comprehension to another mind, somewhat differently constituted to our own. Undisheartened, we must try again, firmly resolved that our charges shall not pass by any difficulty without having first surmounted it.

An anecdote in the early life of one of the Wesleys illustrates this patience and perseverance. His mother was one day teaching him a simple lesson which he was slow to learn; she was very patient with the child, but the father became greatly irritated. "How can you," he at length exclaimed, "tell that dull boy the same thing twenty times over?" "Because," she replied gently, "nineteen will not do."

Patience and a perfect command of temper under all circumstances are some of the most important requirements of a teacher, though perhaps at times a little difficult to maintain. It is remarkable how a single ebullition of passion will destroy the effect of all that we have been endeavouring to teach; and it does this by diminishing the respect in which our children hold the office of the teacher. If dislike and ridicule ever take the place of love and confidence, we can hope for but little success in our future labours.

It is said that amongst the superior classes of the Hindoos, it is customary to have in their dwellings a particular apartment, which is called "Knodhagara," or "the chamber of anger," and into which any member of the household who feels himself to be out of temper immediately retires, remaining there until solitude has calmed and tranquillized him. It would be very useful if every teacher could have his or her Knodhagara, for their temper is often severely tried; but as this cannot be, let them not commit the grievous error of converting the schoolroom into such an apartment.

Patience and good temper will achieve much, even with the least-promising children, while hurry and irritation daunt the timid, harden the ill-disposed, and prevent our winning the affections of our pupils; without which we may drive, but shall not be able to lead: and in such a position, when we cannot get to their hearts, it is of very little use to work at their heads.

Another point which is of great importance to a teacher's success, is, that she should maintain a spirit of cheerfulness. The schoolroom need not, and ought not, to be a sad place. A cheerful instructress will make her lessons interesting, and thereby gain the willing attention of her pupils; and, besides, she will insensibly infuse into them some of her own spirit. The mind of a young girl is easily impressible, and will generally take the tone of those she is with in early youth. We all know how depressing it is to the spirits to associate intimately with those who take a gloomy and discontented view of life; it seems to draw the sunshine out of our hearts. A teacher who is always discontented with her pupils' efforts, whose brow is gloomy, and on whose lips the smile of sympathy and encouragement is never seen to play, must produce a similar effect upon her scholars. A single word of encouragement, judiciously applied, will do more to stimulate a child to renewed exertion, than a long lecture. Thus, if we have to return a faulty exercise, and can say *truthfully*, "This is not right; but I can see you have taken pains; try again, and you will succeed at last," the disappointment in the child's mind is softened at once. She feels that her efforts, though unsuccessful, have been appreciated; and she will repeat them with renewed energy, determined not to lose the good opinion that has been formed of her.

It is most essential to maintain obedience in the education of the young. In little children this obedience must be of a passive character; but we should not allow it to continue so. As the reasoning faculties begin to expand, we should make them see the reasons for such and such modes of conduct, and seek rather to guide and assist them in judging for themselves than to wish that they should be blindly guided by us. Parents and teachers are sometimes apt to forget this, and the consequence is, that when death or other circumstances separate the connection between them, their pupils are cast upon the world like a vessel that has lost its helm, without any power of judging or directing their course aright in the new position in which they are placed.

It is very important also to inculcate early habits of careful and accurate observation. We should teach children to reason upon what they see,—to inquire into the causes that produce certain results. The science of botany, so frequently a favourite study with girls, affords us

peculiar facilities for teaching this habit, as it requires great care and nicety of observation. This remark applies, however, in a greater or less degree to all studies. Nothing will be well accomplished that is done carelessly and inaccurately; and it would be well if all would apply to their conduct the old adage, "Whatever is worth doing at all is worth doing *well*."

One other motto may also usefully be inculcated,—"Bear and forbear," as it will prove through life an invaluable assistant in the discharge of domestic and social duties; but to teach this properly, it must be exemplified by the teacher's own conduct in her intercourse with her pupils. Above all, she must plant in their minds a loving, trusting principle of religion as the mainspring from which they should act, and by which they should guide their thoughts and words, as well as deeds. C.

THE MATHEMATICIANS.

FROM THE "MINING JOURNAL."

SIR,—Thanks to the perseverance of Mr. Jelinger Symons, we have at length a palpable instance, prominently brought forward to every sound capacity, of the ill effects wrought on the understanding by a too exclusive study of the sophistries of the calculus. It is now two centuries since this form of mathematics substituted in our universities the logic of Aristotle. It assumed a similar position as an exercise for the juvenile faculties, to prepare them for the business of life; and had it rested there, it would have been well; but, precisely like its prototype, it has been pursued further, and its professors have fallen into the very same error that Bacon exposed, and given a false resting-place to their minds, in the vain belief that any set of phrases or symbols wielded, *selon les règles*, in the seclusion of four walls, could open the secrets of nature and supply the place of reasoning, built upon the firm basis of physical facts, which can be obtained only by patient experimental toil, and by years—nay, *centuries*—of jealous observation and interrogation—not of fictions, but of realities. Nothing is more to be regretted than when powerful and acute minds, which under proper direction might do science service, are seen to be emasculated under the frivolities of a barren system. That the calculus has led to a neglect of geometry is an old complaint; yet few persons could have been prepared for the utter deficiency of correct geometrical conception exhibited in the authoritative denunciations by the *Times* correspondent and others of Mr. Symons's heresy. The simplest attention to the elementary definitions of points and lines would have prevented all this exposure. An act of rotation necessitates the consideration of only *one* mathematical point—the *centre* of the rotating system; an act of revolution necessitates the consideration of a *second* mathematical point, at an appreciable distance from the first, so that between the two points a line may be drawn. The second or revolving point *may be* a second centre of rotation, as in the case of the earth, or it *may not*, as in the case of the moon: the first evincing two motions, requiring two separate

forces; the second one motion, caused by one force. The whole controversy is as simple as the dispute whether there be any difference between the arithmetical numbers one and two. How, then, is it that intellects of the first calibre can have been led into the attempt to confound and identify such elementary differences as negative and positive, one and two, and make themselves appear, as Dr. Lardner has it, "ridiculously wrong?" Merely by the prejudice of system—a memorable instance that the wise are not always certainly wise. The simple mechanical facts, as they are, cannot be suffered to stand alone; they must be reconciled with "astronomy," as a certain collegiate theory is termed, which exists by and for the calculus. It having been assumed, about two centuries since, that the heavenly bodies, which by their distance, sublimity, and the magnitude of space, compared to our own littleness, stimulate the marvellous and the mysterious, and attract a peculiar attention, continue to move by an impulse, "impressed" on them at some unknown period of time, it becomes necessary for the philosophers of this school to endeavour to subject all their movements, as well as they can, to the known conditions of projected bodies. It is this attempt which has induced that class who call themselves "professed astronomers" to strain themselves to the conclusion, that the path of the earth in its orbit with a *double motion* is not essentially different to the path of the moon in her orbit with a *single motion*. Both bodies *must* be furnished with the orthodox projectile twirl. Mr. Jelinger Symons has at length got in the thin end of the wedge before the face of a scientific association, and long before the end of this century we shall see that gigantic delusion, the theory of the perpetual motion of the planets, under the influence of a forceless force, shattered to pieces, and swept away into the well-stored limbo of past philosophical errors, though perhaps distinguished above them all by the magnitude of its absurdity, and perversion of physical fact.

We have no right, under any sound philosophy, to attribute to the great and distant bodies of the universe, merely because they are great and distant, qualities or properties quite at variance with our own physical experience. It more resembles politics than science to speculate at large upon remote grandeur which we cannot approach. After wasting their intellects in framing these loose systems, and affecting to comprehend them, their authors turn round to the unenlightened and heretical public of common sense, and superciliously exclaim, "You are not initiated; you cannot understand the unknown tongue." What answer should be made to a gardener who told us that the poke he gave to a bean in planting it made the roots grow downwards, and that the pulling out his planting-stick made the stalk follow upwards? All these things are the secrets of trade. Why should not the gardener, as well as the mathematician, have his profitable mystery?

The late controversy has supplied striking instances of those "vermicular" questions, which Lord Bacon warns us are so apt to be engendered in minds addicted to the stagnation of leisurely abstractions. Our opponents seem to attach the greatest importance to their capacity for realizing the conception of an abstract axis, or axis passing through any or every part of a revolving body, through the Peak of Teneriffe, through St. Paul's, through their heads, or through the moon. From the habitual conviction that all their ideas are great, they think this a

great idea, and deplore the doomed inability of the *mere practical man* to comprehend such sublimity. Were they to ascend from this bathos of the trivial, and study the most commonplace of mechanical facts, the daily conversion of circular to reciprocating motion, they might amuse themselves not only with abstract axes, but with concrete axles stuck into any revolving body as thick as "quills upon the fretful porcupine;" we might have less of such very vain and pretentious theories, and they themselves might have a better appreciation of the solemnities they put forth with the assertion, that "only astronomers and mathematicians can comprehend them." They are mere pedantic puerilities, magnified by their ignorance of what is truly important into a "vast profound," which they believe none but themselves can fathom. It is time that a science so valuable as mathematics, when properly pursued, should be confined to its due limits, and the small professors of it set at their right level.

DAVID MUSHET.

INDUSTRY.—Industry must be taught a child as one amongst the most important duties of life; habits of industry must then be implanted in him; and in no way will he gain these better than by living in an atmosphere of which this forms one of the principal and chief ingredients. He must read of it in his lessons; he must see it in the work of the school; he must catch it in the conduct and character of his master. Every effort must be made to overcome any spirit of idleness; and in the work and order of the school every means should be used to illustrate the benefits arising from industry, and the baneful effects of sloth and idleness. As practice is better than precept, through the untiring energy of the master not a child should be allowed to be without occupation even for a moment. I know how difficult it is to carry this out; but it does not belong to the subject under consideration to enter upon these difficulties or their remedies.—*Rev. John Freeman.*

LITTLE KINDNESSES.—Little acts of kindness, gentle words, loving smiles—they strew the path of life with flowers: the sun seems to shine brighter for them, and the green earth to look greener; and He who bade us "love one another" looks with favour upon the gentle and kind-hearted, and He pronounced the meek blessed.—*Canadian Journal of Education.*

EDUCATION OF YOUNG LADIES.—It seems sometimes odd enough to me, that while young ladies are so sedulously taught all the accomplishments that a husband disregards, they are never taught the great one he would prize. They are taught to be *exhibitors*, he wants a *companion.—Godolphin.*

APTNESS TO TEACH.—The great secret seems to be this:—to be able easily to descend from an elevation far above a pupil to a level with his capacity. There must be a freedom and fulness of language,—a power of choosing with rapidity words which are at once correct and easy of application; there must be a clearness of ideas,—order, method, and arrangement; there must be no jumping from one part of the subject to another: every step of the lesson must be progressive. This requires a faculty of remembering what has been already demonstrated, and also a faculty of looking forward to the various parts which will be required, each in its turn, to complete the scheme.—*Rev. J. Freeman.*

THE PRESENT SYSTEM OF OVER-SCHOOLING.

ENORMOUS injury is being done by the absurdly protracted hours of school study. In nearly every gentlemen's school in England it is usual to begin work at eight or half-past eight (but often at seven), and, with something like two hours for meals and recreation, prolong schooling even for young children till tea-time. Incredible as it may appear, the mental labour of the day is not even then complete; for in most schools, if not in all schools, the lessons for the next morning have then to be learned in addition to the foregone work; and when, all the intellectual energy being wearied and exhausted, such a tax on the brain is more than usually oppressive and noxious.

The injury thus done to health is great. Many a young constitution receives the seeds of future premature decay, and countless ailments are thus engendered for the sake of acquirements which, even were they thus attained, would indeed be dearly purchased. But how infinite is the folly of the system when, in addition to its sanatory evil, its utter inutility is taken into account! We cannot cram minds as we cram bales, by hydraulic pressure.

Lord Stanley, at a recent opening of an Oldham "Lyceum" (as it was sillily called), most sensibly remarked as follows:—"It was not true that a large amount of leisure was requisite in order to obtain a considerable proportion of learning. The brain, like the body, could only bear a certain amount of active exertion: nay, of all organizations it was the most delicate,—the most easily put out of repair, and the most difficult to set right when once disorganized. It was liable to suffer in many ways; from too little work in those whose labour was mechanical only, or who do not work at all; or from too much work in those whose labour employed chiefly or exclusively the intellectual faculties. It was idle to suppose that the majority of men, though free from any pressure of business, though independent of a profession or trade, could, whatever the amount of their leisure, or however much they might desire it, occupy anything like the whole, or even the greater part, in study.

"If no external circumstances interposed to limit their exertions, nature would, and did. The mind only retained its freshness for a limited time, and if that time were exceeded, exhaustion ensued; little was learned, and the seeds of future mischief were sown in the constitution. What he contended for, then, was this,—that no man willing to study need despond, because he could only command a portion, it might be, of his evenings, whilst others were masters of the whole day. It was bad arithmetic in these matters to compute that four times as much could be learned in four hours as in one. It would be just as reasonable to argue, that because a good dinner daily gave a man health and strength, therefore four such dinners every day would make a man four times as strong and healthy. It would be just as reasonable to argue (what all who have looked even into the elements of finance know to be untrue), that if they doubled the rate of a tax, they would double also the amount it would produce."

Now what is true as addressed to working men, is just as true when *applied to* our own children. We firmly believe that a vast injury is *being done* to the soundness of future learning, by the inordinate over-

cramming of boys; which seems at present to be a rule without exception. These excessive hours of study are applied chiefly to classics. A sound elementary education in every-day knowledge is rendered altogether subordinate. Superficiality necessarily results; first, from the undue tax upon, and spraining of the intellectual powers of the child; and secondly, from the enormous quantity of matter he is required to swallow, and which he can nowise digest. Hence, cram systems and fictitious standards obtain. Formulæ, without adequate training in the principles of mathematical and arithmetical science, as the Moderators themselves complain, become the road to the tripos at Cambridge, whilst the knack of versification is studied as the best chance of a high place in the classes of Oxford. Classics are studied, less as a means of chastening style, facilitating grammar, and giving elegance to the expression of English, than as a means of obtaining prizes, scholarships, and honours. These mistakes in education—for such we regard them—are part and parcel of the vicious system of long school-hours. It cannot be too often repeated, that the true aim and object of education is to form *men* fit for their social duties and relations. If this be true, parents should insist upon it, that mental studies be limited first of all to such subjects as will conduce to those ends; and secondly, that the demands on the intellect be held in subjection to the requirements of bodily strength and mental vigour. Four hours of real application to book learning is ample for any child under twelve.

If any sensible man would confer the immense boon on English society of opening a boarding-school, where a good English, and perfectly elementary Latin education were given, and limited to four hours daily, devoting the rest of the day to healthful games and gymnastic exercises, and such useful things as rowing, gardening, carpentering, &c., the master being with his boys, and constantly using these admirable facilities of moral training, we would insure him a handsome income. Let him confine his ambition to sending his pupils home healthy, hearty, manly, generous boys, with the feelings and manners of gentlemen; with a fair amount of practically useful knowledge, and a sound elementary education in Scripture, arithmetic, geography, history, and English grammar. We would undertake to back such a boy, starting at twelve with such a substratum, against any number of the cramlings of the fashionable school system. He should beat them moreover on their own ground; and would be a better classic, a better mathematician, and a better MAN in every sense of that broad word, at twenty, than they have any chance of becoming at any period of their future lives.

IMPORTANCE OF THE AVOCATION OF SCHOOLMASTER.—The business of the schoolmaster is to fashion and mould a man for life; oftentimes it is his lot to form and model almost an entire community,—numerically, at all events, the larger portion. There must be, then, if he aims at success, an earnest and constant endeavour to root out all that is evil, to eradicate the weeds, to plant and to foster nobler feelings in the breasts of his pupils, and at the same time to harmonize the members of the future family one with another. * * * * To the schoolmaster's care is committed an enormous trust; in his hands is placed machinery of a construction *most exquisitely* delicate, from which, if properly handled, results most *important to the community* are to emanate.—*Rev.* J. Freeman.

Notes of New Books.

History of Greece, based on that of Connop Thirlwall, D.D., Bishop of St. David's. By Dr. Leonhard Schmitz. Fourth Edition. Pp. 566. London: Longman & Co., 1856.

The Bishop of St. David's wrote many years ago the History of Greece, amplified and adorned with the philosophy and generalizations with which elegant and erudite scholarship and a powerful mind naturally enlarges upon the facts of history, revives its power, develops its use, and portrays its beauty. Dr. Leonhard Schmitz has retained the skeleton, and discarded the symmetry of the work; he has stripped the tree of its summer foliage, fruit, and verdure, and given us its winter aspect, faithfully preserving its material substance; nor are these by any means devoid of utility, and as a "Manual containing within a reasonable compass an accurate and complete outline of the subject," we admit its merit; but we must altogether deny that this is the best mode of making "the voluminous works" of Bishop Thirlwall and Mr. Grote "available for educational purposes." Youth should be enticed to history by flowery paths, not deterred from it by dates, incidents, and details, oppressive to the memory and distasteful to the intellectual appetite of the child. If any one would take the trouble, who had the power, of adopting the exact converse of Dr. Schmitz's plan; and would give us all the poetry, philosophy, and pictorial narrative, discarding three-fourths of the drier details, chronology, and minor events in Bishop Thirlwall's masterly work, we should then indeed have an introduction to the master-pieces of classical historical literature as engaging, as we cannot but think the digests now in fashion are repellent; and even detrimental to the higher order of historical knowledge.

We are bound to add that the six chapters annexed to the former editions by Dr. Schmitz by no means indicate him as likely to succeed in such an enterprise. His facts are unexceptionably accurate; his style is plain and simple; but the facts are so numerous, the inferences and divergencies so few, and the narration so scanty, that he can hardly have written these chapters with any hope or expectation that they would inspire a thirst for further draughts, or that a tithe of the curt facts condensed in them would ever be remembered. In fact, the great bulk of it strongly resembles the digest of Lempriere's Classical Dictionary: it is chiefly an epitome of biography condensed to such an extent, that in some passages the proper names form the majority of the words in a sentence, and flow through each page in numbers which baffle human memory to retain them. Here is a specimen:—

"The public taste became more and more vitiated: and among those who accelerated its depravity by their obscene paintings, we must mention (?) Pausanias, Nicophanes, Chaerephanes, Arellius, and others. *Amid this* general corruption of taste, Mydon of Soli, Neocles, Leon*tiscus* and Timarchus of Sicyon, and the Sicyonian school in general, *alone retained* some traces of former purity and freshness of style."

Now if half of these gentry were signal only for the obscenity of their works, and the remainder were depraved only in a lesser degree, of what possible service is it to store their names in one's memory, and perpetuate their depravities? Are these among the legitimate ends of history? If nothing more useful can be said of them, why remember their vicious existence? And why "*must*" educational historians "mention" names which it is so palpably desirable to forget?

In page 515, in enumerating (for it is nothing more) the disciples of Plato, we have mention of eleven philosophers in five lines, of whom, with two exceptions, not a syllable more is said.

We are very anxious to aid in popularizing knowledge in each branch of learning. Much may be done, and if so, much ought to be done, in facilitating and insuring its acquisition by rendering it as interesting as possible. It is with this view (and from no desire to indulge in condemnatory criticism) that we have adopted the tone and the aim sufficiently observable in every notice we have written during the last two years in this Journal: nor is there any probability that we shall refrain from urging the same views for the time to come, whenever occasion calls for them.

LITTLE BOOKS.

The Seven Kings of Rome. By Josiah Wright, M.A. Pp. 137. (Cambridge: Macmillan, 1856.) A book which, like its predecessors by the same author, we can speak of in terms of unqualified praise. We cordially approve of making boys construe at a far earlier period than has been usually done. This book affords admirable facility in doing so. The extracts from Livy are well chosen, and very fully and ably noted.——*Series of Elementary Questions and Examination Papers on Latin Grammar.* By the Rev. J. D. Collis, M.A. Part II. Pp. 146. (London: Longmans, 1856.) Admirably done. The plan is well conceived and most ably executed. Buy it, together with Part I., by all means, ye teachers of Latin Grammar. These books consist first of questions to be answered, and of examples on the same rules to be re-translated into Latin.——*The Church of England Schoolmaster.* By the Rev. John Freeman, M.A. Pp. 23. (London: Longman and Co., 1856.) Sound sense, good feeling, and thoroughly practical suggestions flow through these few pages, replete with wisdom for time and eternity.——*Aphorisms on Drawing.* By the Rev. S. C. Malan. Pp. 58. (Longmans.) Decidedly the most sensible book we have ever read on this subject. We shall select passages for the pithy paragraphs with which we supplement short pages, and as we learn, much to the delight of our general as well as professional readers.——*La Bagatelle,* revised by Madame N. L. New Edition. Pp. 162. (London: Simpkin and Marshall, 1856.) A useful little book, and the lessons pleasantly and easily arranged, and the illustrations are nicely done.——*Class Atlas of Physical Geography.* By Walter Mc.Leod. Pp. 20. (London: Longmans, 1856). Very nicely executed little maps, which give a good outline of places, physical features, and divisions of countries.——*Introduction to Reading.* Pp. 32. *Reading Lessons.* Pp. 32. *Arithmetical Primer.* Pp. 32. *Grammatical Primer.* Pp. 32. (London and Edinburgh: W. and R. Chambers, 1856.) These small books are the commencement of the Messrs. Chambers' Minor Educational Course, and very useful they are. We hope the series will be continued.

SERIALS RECEIVED.

Frazer's Magazine; Museum of Science and Art; Early Ballads (annotated edition); *Penny Post; Canadian Journal of Education.*

Intelligence.

SCIENTIFIC APPARATUS FOR THE USE OF ELEMENTARY SCHOOLS.

SUMMARY OF CONDITIONS.

THE Committee of Council on Education will grant to Elementary Schools in which pupil-teachers are apprenticed pecuniary assistance, to the extent of two-thirds of the cost, in purchasing the articles enumerated in the accompanying list, and of suitable cabinets to contain them.

Apparatus may be selected to the value of 10*l.*, 15*l.*, or 20*l.*

The master must be examined in order to give proof of his qualifications to use the apparatus selected.

The text-books of examination are named under each of the divisions of the list.

The time and place of examination are the same as those prescribed for registration or for certificates of merit.

In the case of masters already holding certificates of merit, SPECIAL EXAMINATION IS WAIVED, if the selection be made from the division of mechanical and geometrical (A.), or from the *first* lists of physical (B.) science.

A certificated master in the third or lowest degree of merit qualifies a school in which pupil-teachers are apprenticed for a grant towards the cost of apparatus selected from the last-named divisions equal in value to 10*l.*; in the middle degree 15*l.*; in the upper degree 20*l.*

In order to obtain grants under the *second* lists of the physical (B.) division, or under the division of natural history (C.), certificated masters must, equally with those who are uncertificated, pass a special examination.

Renewal grants, equal in amount to one half of the original grant, may be claimed at the expiration of three years from the date of the original grant.

Additional grants (*i. e.* for articles in another division of the list) may be claimed at the like interval, on the same conditions as the original grant.

Managers, at the time of claiming grants, may extend their selection (at the expense of the school) beyond the amount on which grants are allowed.

THE BISHOP OF ST. ASAPH.

A VERY gratifying scene occurred last month in Montgomeryshire. The worthy prelate was proceeding to consecrate a church among the lead-works on the side of Plynlimon, to which he had himself contributed the large sum of 250*l.*, when a large body of miners went to meet his lordship the distance of a mile, wishing to take the horses out of the carriage and "pull him in," his lordship having on a previous occasion visited several of the cottages, and gained their affections by this as well as by his large contribution to the church. His lordship declined the honour, and is reported to have remarked, "I am not a Crimean hero, but a Christian bishop." This shows that the Church in Wales is not so disaffected even towards English bishops as some disappointed and busy intermeddlers within and without her pale would make us believe. We venture to say that, in proportion to the available resources, no diocese in the kingdom is making such strides in the right direction as that of St. Asaph. The worthy prelate stayed the (Welsh) afternoon service, and laid the foundation-stone of a national school, near the church, observing that he hoped the grown-up people would make use of it, as he wished to learn something every day of his life.

MEETINGS OF THE UNITED ASSOCIATION OF SCHOOLMASTERS.

St. Martin's Hall, Long Acre, London.

SESSION 1856-57.

Saturday, 27th September, 1856.—Lecture by Mr. R. MIMPRISS, on his System of *Graduated* Simultaneous Instruction.

Saturday, 25th October.—Lecture by Mr. G. REINICKE, on an Improved Method of *Teaching* Gymnastics.

Saturday, 29th November.—Discussion on Teaching Physiology in Schools. To be opened by Mr. M'LEOD.

29th and 30th December.—ANNUAL MEETING.

The chair is taken at FIVE o'clock in the evening precisely. The Acting Committee meets immediately after the general meeting.

JAMES TILLEARD, *Corresponding Secretary.*

Notice to Members.—The Acting Committee beg leave to call attention to the foregoing list of general meetings, and to express a hope that the time of meeting will be found more convenient than that adopted during the first part of the year. Each member will be allowed to introduce other teachers or promoters of education to the meetings.

The Committee are happy to be able to announce that they have obtained the free use of a room in a central part of London for depositing and exhibiting the collection of books and apparatus which they are endeavouring to form. It is intended that the collection shall be open to the inspection of members at stated times. Particulars will be announced so soon as the arrangements have sufficiently progressed.

The efficient working of this, as of every other association, necessarily depends in a large measure on the certainty and regularity of its income. Members are therefore respectfully reminded that the subscription of five shillings for the current year became due in January last; and they are requested to forward the same (if they have not already done so) to the Corresponding Secretary, *without further delay*, by a money-order made payable at the Charing Cross Post-office, London.

ST. MARTIN'S HALL, *September*, 1856.

THE SURREY CHURCH OF ENGLAND SCHOOLMASTERS' ASSOCIATION held their annual meeting lately. A great number of clergy and others attended. The chair was taken by the Bishop of Winchester, who spoke well, and, after mentioning the good effected by the Hon. and Rev. Mr. Bestin, Wilts and Hants, by the establishment of similar associations, he announced his intentions of offering the female teachers a prize for the best essay on some subject that should hereafter be agreed upon. As the subject he had chosen last year did not appear to suit them, he should not propose the same again, but with the assistance of his reverend friend Mr. Wynter, who was well qualified to suggest some subject, he should make the offer again for the next year, and thus take the matter out of the hands of Mr. Chandler; and he concluded by offering a second prize to be competed for by the schoolmasters. After the meeting separated there was a dinner, at which the bishop presided, and, after an able speech from his lordship and other members, the meeting broke up.

EARLY CLOSING MOVEMENT.—It is essential to the education of the young men employed in shops that some legislative stop should be put to the hours during which they are now confined. It arises from the growing rapacity of trade. Here is a lamentable instance of the excess to which this abuse is carried:—

"I (M. G.) have been about eleven years in the chemist's business. My father was an independent man, but dying when I was young, and there being a largish family of us, I was put to the business early. I was apprenticed to a country druggist for six years, with a premium of 100*l.* During that period I had no opportunity of improving my mind, and therefore remained just as I left school—or, rather, I retrograded. I then took a situation in the town of ——— at a salary of 60*l.* per year, having to board and lodge myself. I remained there two years. I then came to London, and after a search of six weeks, obtained a situation on the borders of the city at a salary of 30*l.*, with bed and board. In the fashionable West-end chemists' shops, they consider it quite a favour to take a young man from the country without any salary at all for the first year or two. In this, my first London situation, the hours were, all the year round, from seven till ten, and occasionally it was later; on Saturday night the hour of closing was always twelve o'clock. (In the town trade *one can scarcely ever get* a comfortable meal, being subject to constant interruptions

through customers coming in.) After remaining there for a year and a half, I took my present situation at the West-end, at the same salary of 30*l.* If a young man asked more, he would scarcely be listened ot. Our hours here are from seven till eleven, and till twelve on Saturdays. *On Sunday* we begin at eight in the morning, and keep open till eleven o'clock at night, and have, I think, more customers than on any other day; but chiefly for small quantities of articles, such as *tooth* and *seidlitz powders, patent medicines, scents, hair oil,* and *carmine.* I believe my case is by no means an exceptional one; in fact, I know a large number of young men who are similarly circumstanced, many of them being personal friends of mine."

Notices.

REDUCED CHARGE FOR ADVERTISEMENTS.

Orders and Advertisements must be sent ONLY *to* MESSRS. GROOMBRIDGE, 5, *Paternoster Row; the latter, from strangers, must be accompanied by a remittance, according to the following scale:—If under* 40 *words,* 3*s.* 6*d.; for every additional ten words,* 6*d.; a whole page,* £2. 2*s.; a half-page, or one column,* £1. 5*s. Ten per cent. discount on all Advertisements inserted more than twice.*

The JOURNAL *will be sent, free of postage, for one year, on receipt of* 6*s.* 6*d. in advance.*

HAVET'S FRENCH IN ONE VOLUME, ON A NEW PLAN.

Large 8vo., strongly bound, price 6s.

The Complete French Class-Book; or, Grammatical and Idiomatical French Manual, prepared expressly for the use of English learners, by A. HAVET, French Master, Glasgow Athenæum, &c.

This theoretical and practical work, which is in use in many Public and Private Schools, is the *only* book required by beginners, being, at the same time, adapted to the most advanced students. It contains:—

1. A Progressive French Reading-Book;
2. Copious Vocabularies;
3. A Complete Accidence and Syntax, exhibiting a continual comparison between the English and the French languages;
4. French Lessons illustrative of all the idioms;
5. Abundant Exercises;
6. French Conversations upon all topics, &c.

*** A specimen of 16 pages forwarded *free* to any one applying to Monsieur A. HAVET, Collegiate School, Glasgow.

London: DULAU & Co.; W. ALLAN; SIMPKIN & Co.

ILLUSTRATED EDITION OF DR. SCHMITZ'S HISTORY OF GREECE.

New Edition, with many Woodcuts, in 12mo. price 7s. 6d. cloth,

History of Greece, from the Earliest Times to the Destruction of Corinth, B.C. 146; mainly based on Bishop Thirlwall's History of Greece. By Dr. LEONHARD SCHMITZ, F.R.S.E., Rector of the High School of Edinburgh. Fourth Edition, with supplementary Chapters on the Literature and Arts of Ancient Greece; and now first illustrated with Map of Athens and 137 Woodcuts, designed from the Antique by G. SCHARF, Jun., F.S.A., .R.S.L.

London: LONGMAN, BROWN, GREEN, LONGMANS, & ROBERTS.

Just published, price 2s. 6d.

Outlines of European Literature from the Earliest Times. A Class Book for Schools. By F. THORPE.

London: GROOMBRIDGE & SONS, Paternoster Row.

In 18mo. price, sewed, 2s. 6d.; or, half-bound, 3s.

Class Atlas of Physical Geography, for Training Colleges, Pupil-Teachers, and the Upper Classes of Schools: comprising 20 coloured Maps and 10 Sections and Diagrams; with Explanatory Descriptions of the Plates. By W. M'LEOD, F.R.G.S. and M.R.C.P., Royal Military Asylum, Chelsea. Forming part of the new School Series edited by the Rev. G. R. GLEIG, M.A., Inspector-General of Military Schools.

London: LONGMAN, BROWN, GREEN, LONGMANS, & ROBERTS.

Of whom may be had, in 18mo. 2s. 6d. sewed, or 3s. half-bound,

Mr. M'LEOD'S HAND-ATLAS of GENERAL GEOGRAPHY, comprising 29 full-coloured Maps.

Just published, in 12mo., price 3s., cloth.

Notes of Lessons, in their Principles and Application, for the use of Teachers and Pupil-Teachers in Elementary Schools. Containing Chapters on Notes of Lessons; Methods of Instruction; The Interrogative Method; The Elliptical Method; The Lecturing Method; The Picturing-out Method; The Illustrative Method; The Demonstrative Method; Preparation of Notes for Lessons; Preparation of Lessons from Rough Notes; Review; Simultaneous Answering; Practical Lessons; Adaptation of Lessons; Training; Religious Instruction; Bible Lessons; The Church Catechism; The Liturgy; Reading; Writing; Arithmetic; Grammar; Geography; English History:—With a Lesson on each Subject. By G. SYDENHAM, C.M., Master of the Cannock Endowed National School.

London: LONGMAN & Co. Stafford: R. & W. WRIGHT.

WELLS CENTRAL (GIRLS') SCHOOL.

An Experienced Mistress is WANTED for the above School at Christmas.

The School is not yet under Government, but will eventually be so.

Address (inclosing references for decided Piety and Efficiency), Rev. G. BLISSET, Wells, Somerset.

N.B.—Answers can only be written to such as appear most likely to suit.

WORKS ON NATURAL AND EXPERIMENTAL PHILOSOPHY.

BY T. TATE, F.R.A.S.

I.

AN ELEMENTARY COURSE OF NATURAL AND EXPERIMENTAL PHILOSOPHY, for the Use of Beginners; in which the Principles of the Physical Sciences are familiarly explained and illustrated by numerous Experiments and Diagrams. Forming a portion of the Rev. G. R. Gleig's new School Series, and to be had separately as follows:—Mechanics and the Steam Engine, 1s.; Astronomy for Beginners, 1s.; Hydrostatics, Hydraulics, and Pneumatics, 1s.; Light and Heat, 1s.; Electricity for Beginners, 1s.; Magnetism, Voltaic Electricity, and Electro-Dynamics, 1s.; Experimental Chemistry, 1s. The set complete, in 2 vols., price 7s.

II.

THE LITTLE PHILOSOPHER, ON THE SCIENCE OF FAMILIAR THINGS: in which the Principles of Natural and Experimental Philosophy are systematically developed from the properties and uses of familiar things. Forming a series of instructive reading-books for young people. Book I., price 1s.—Part I. The Chemistry of Familiar Things. Part II. The Mechanics of Familiar Things. Book II., price 1s.—The Mechanics of Familiar Things (*continued*); The Physics of Familiar Things. Book III.,—Part III. The Physics of Familiar Things (*continued*). The set complete in 1 vol., price 3s. 6d.

III.

EXERCISES ON MECHANICS AND NATURAL PHILOSOPHY; or An Easy Introduction to Engineering. Containing various Applications of the Principle of Work; the Theory of the Steam-Engine, with Simple Machines; Theorems and Problems on Accumulated Work, &c. New Edition. Fcp. 8vo., price 2s.

IV.

THE PRINCIPLES OF MECHANICAL PHILOSOPHY APPLIED TO INDUSTRIAL MECHANICS; forming a Sequel to the Author's "Exercises on Mechanics and Natural Philosophy," &c. With numerous Wood Engravings. 8vo., price 10s. 6d.

V.

THE ELEMENTS OF MECHANISM: containing a familiar explanation of the Construction of various kinds of Machinery, &c. For the Use of Schoolmasters and Private Students. With numerous Woodcuts. 12mo., price 3s. 6d.

VI.

ON THE STRENGTH OF MATERIALS: containing various Original and Useful Formulæ, specially applied to Tubular Bridges, Wrought-Iron and Cast-Iron Beams, &c. 8vo., price 5s. 6d. Forwarded, postage free, from the Author, upon the receipt of Fifty penny postage-stamps. Address: T. Tate, Hounslow.

VII.

OUTLINES OF EXPERIMENTAL CHEMISTRY: being a familiar Introduction to the Science of Agriculture. Designed for the Use of Schools and Schoolmasters. With numerous Woodcuts. 12mo., price 1s. 6d.

VIII.

KEY TO TATE'S EXERCISES ON MECHANICS AND NATURAL PHILOSOPHY: containing full Solutions to all the unworked Examples and Problems. With numerous Diagrams. 12mo., price 3s. 6d.

London: LONGMAN, BROWN, GREEN, & LONGMANS.

GENERAL PRINCIPLES OF A METHOD OF TEACHING SINGING IN ELEMENTARY SCHOOLS.

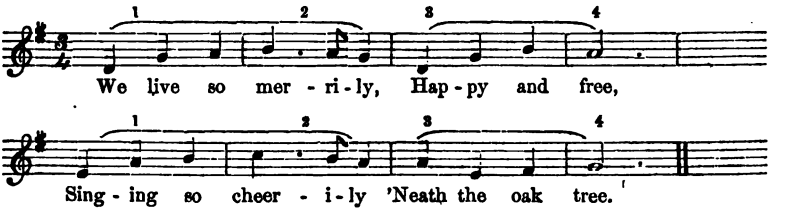
BY J. TILLEARD.

(*Continued from page* 409.)

IX. Musical Rhythm must be taught by means of Poetic Rhythm.

IN order to exemplify the nature of musical rhythm let us take the following rhythmical passage (Fig. 1) :—

Fig. 1.—Passage to illustrate rhythm.

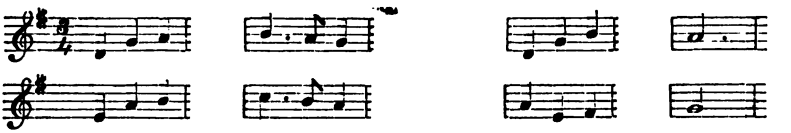


This passage consists of two large "sections" of equal length, as shown by the division into two lines. Each of these sections consists of two "phrases," as shown by the brackets. Again, each phrase contains two "measures," divided off by the bars. If we take the crotchet as the unit of duration, there are in the whole passage 24 units, in each section 12 units, in each phrase 6 units, and in each measure 3 units. Here, then, is a symmetrical arrangement of the main divisions.

But these several portions correspond not only in total duration, but also in the duration of the separate notes. The second section, taken as a whole, corresponds in this respect to the first, note for note; and the subdivisions of the one correspond to the subdivisions of the other, phrase to phrase, and measure to measure.

This will be better seen by actually taking the passage to pieces (Fig. 2) :—

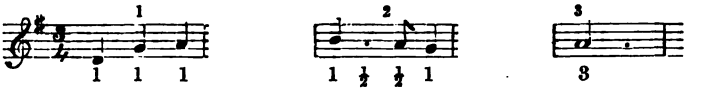
Fig. 2.—Rhythmical analysis of passage.



It will also be observed that the initial measure of the second and fourth phrase has the same form as that of the first and third.

The entire passage, therefore, contains only three distinct forms of measure, which may be represented by the following measures (Fig. 3). The rhythmical values of the sounds are indicated by figures *placed beneath them; one* being the unit of duration.

FIG. 3.—ELEMENTARY FORMS OF MEASURE IN PASSAGE.



The accent falls regularly on the first of every group of three units; so that the divisions and subdivisions have an exact correspondence in the relative accentuation as well in the relative duration of the sounds of which they consist.

Thus the rhythm of the music is a transfer of the rhythm of the poetry; the measure representing the foot, the phrase the line, and the section the half of the quatrain. This will be more distinctly seen by writing the poetry separately and dividing it off into feet :—

"Wē lĭve sŏ | mērrĭly, |
Hăppy ănd | frēē,
Sĭnging sŏ | chēerĭly |
'Nēath thĕ ŏăk | trēē."

The regular anapæst is represented by the measure containing three crotchets; the irregular quantities of the feet *mērrĭly* and *chēerĭly* by a corresponding variation in the duration of the sounds; and the exaggerated quantity of the words *frēē* and *trēē* by prolonging the sound through the whole measure.*

In this way musical rhythm is determined by poetic rhythm. It is true that in its highest forms music is now entirely independent of poetry; but this is the result of the development of forms derived originally from poetry; and, in regard to vocal music, with which alone we have to do, the influence is necessarily immediate, for, other things being the same, a melody is excellent in proportion as it brings out forcibly the rhythm of the poetry.

It seems to us to follow from this, that in order to make pupils understand and properly express the rhythm of music, it should be taught by means of the rhythm of poetry. This will be best done by making particular examples the basis of the explanations.†

---

* Edgar A. Poe's notion that poetic feet ought to be reckoned, not so much by the *number* of syllables as by the *time* occupied in pronouncing them, receives striking confirmation from the adaptation of music to poetry.

† An idea is gaining ground among German teachers that the best way of teaching music generally is to make tunes the centre points of the instruction. In a review of musical publications which appeared in the "Pädagogischer Jahresbericht" for 1853, the writer, Mr. Hentschel, Director of Music in Berlin, says :—

"In regard to musical instruction itself a review of the publications in this department does not present anything essentially new. But it is important to note that the idea, advanced by various writers in recent years, of a plan for the musical instruction which should be similar to that adopted by Otto, Kellner, Pechner, and others in teaching grammar, is gradually gaining ground. From a comparison of the two subjects of instruction, Mr. Meyer comes to the conclusion, 'that while the piece to be read is, as a rule, only a means to an end, the piece to be sung, that is, its faithful and self-conscious reproduction, must itself be the end, from whose educative power the further advancement of the pupil is expected; that the common school, linking all theory to particular compositions, should know nothing of a separate theoretical course; and that the school song-book, in a still stricter sense than the

It will be advisable at first to keep to the same unit of duration; say the crotchet, as that is the most usual. It is not practicable to make beginners count the time by very minute subdivisions. The music which they have to practise will necessarily be of the most simple construction, and in such music, to take the smallest subdivision as the unit, would be to make the exception the rule. When they are more advanced, and have acquired an idea of the relative character of notes, measures may be introduced in which other notes than the crotchet are the units of duration; and then they will be prepared for taking *any* regular subdivision of the measure as the unit, according as the *absolute* time of the piece may require. At present nothing need be said about absolute time. The teacher must at first be satisfied with any speed at which he can get his pupils to sing, and must gradually increase it to the rate required. He must select for practice pieces in moderate time.

Suppose the teacher writes on the black board a verse of the favourite nursery rhyme "Twinkle, twinkle, little star:"—

"Twinkle, twinkle, little star;
How I wonder what you are;
Up above the world so high,
Like a diamond in the sky.
Twinkle, twinkle, little star,
How I wonder what you are."

He may cause the pupils to observe the division of the verse into lines, and the division of each line into feet, after which he may let them read the verse so as to mark these divisions distinctly. He should next write the verse on a music board, marking the division into lines by a double stroke, and the division into feet as usual by a single stroke.

---

reading-book in the lessons on grammar, *must be the centre of all instruction in singing.* But' (he continues) 'it will easily be perceived that this employment of tunes is possible only at a certain stage of musical education, as the voice of the tyro must have been previously developed, and he must have learned the notation of music; and the question still remains to be considered, how we are to reach this stage.' This induces him to let a preparatory course precede the main course of instruction. In the former, at Stage I., the most simple exercises for the ear and voice are given, and easy songs and chorals learned by ear. Stage II. has then to do with the more strict instruction. Each lesson is divided into two halves. First half: Learning the notes, easy exercises in pitching sounds, comprehension of the three major chords of the tonic, dominant, and subdominant, out of which the major scale is constructed, and some exercises preliminary to the minor scale. Second half: Practice of school songs, at first calling into exercise the ear only, then the eye also. The teacher is himself to arrange the materials for the preparatory course, and that according to F. W. Schütze's 'Practical Course of Instruction in Singing,' which this author considers the best aid that our literature possesses. In the main course, the instruction is given wholly and solely in connection with the school song-book, on the basis of what has been already acquired. '*From this time all the theory and all the practical exercises, so far as they are still necessary, are called forth by and terminate with the song actually under practice.*' The method here indicated is essentially analytic. I confess myself a believer in its principles. In harmony with it is G. Flügel's 'One Year's Singing Course,' which in its simplicity has the merit of having avoided a multitude of useless exercises in pitching sounds.

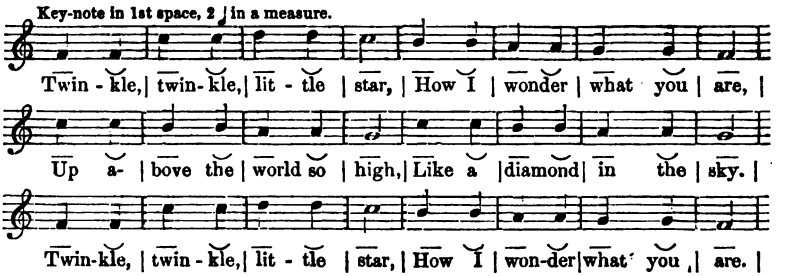
* * * * * *

"But few writers still adhere to the older plan, according to which the pupil has first to go through the entire range of intervals in a series of solfeggi, before songs are systematically introduced. It is to be expected that the employment of this method will gradually come to an end."

Then, selecting the far-famed air (Ah! vous dirai-je mamam?) to which Mr. Hickson has set this charming little poem, he will write the notes on the board, placing each exactly above the word to which it belongs, and making the bars which separate the measures correspond to the strokes which separate the feet. As he goes on he will point out that each syllable has a note, and that most of the notes are of the same shape, and are marked off two by two like the syllables; but that at the end of each line there is a note of a different shape, occupying a division by itself. He will then tell them that the small notes are called crotchets, and the large ones minims, the upright dividing strokes bars, and the portions of the melody marked off by them measures. They will readily understand that the crotchets are each to have the same time, and the minims the time of two crotchets; that the first crotchet of each measure is to be accented, like the first syllable of each foot, and that the minims are also accented, but are prolonged over the unaccented part of the measure to correspond with the length of the final syllable of each line. He may next proceed to show them how to mark the time of each measure by making two beats with the hand,—one down, one up; and he should let them practise this, pronouncing the words to the beats, as a transition to the musical expression of the rhythm.

For the convenience of those of our readers who are not acquainted with the melody we subjoin it as it will appear on the music board (Fig. 4):—

FIG. 4.—EXAMPLE OF TROCHAIC RHYTHM.



We should dispense with the time signatures altogether at the commencement of the instruction, and indicate the time in the mode which we have here adopted, and which is similar to that employed by Mr. Hickson in his "Singing Master."

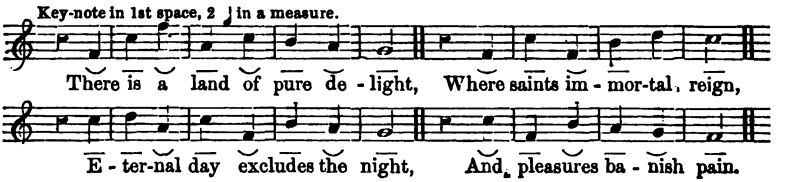
The pupils are now prepared to proceed to the practice of the music. They must first be allowed to sol-fa it, without regard to rhythm, until they can hit the notes; then they should sol-fa it rhythmically, beating time; lastly, they may *sing* it to the words. They should be taught to take breath at the end of every line.

Several psalm and hymn tunes are written in this rhythm, and fulfil the other conditions required at this stage.

This kind of rhythm is varied, and the monotony of cadence avoided in numerous ways: by prolonging particular notes and shortening others, connecting several notes on one word, introducing rests, and so on. Examples of these variations should be given for practice, and the new features explained.

As Trochaic metre becomes Iambic when we cut off the initial syllable of a line, so the same musical measure is suited to the expression of the latter metre if we commence on the unaccented part or upbeat. The most common instances of this kind of rhythm are to be found among psalm and hymn tunes. These, it is true, are generally written with a minim to each beat; but the teacher can easily write them in the two-crotchet measure, and this will subsequently enable him to explain that the two measures are equivalent. The following tune may be taken as an example (Fig. 5):—

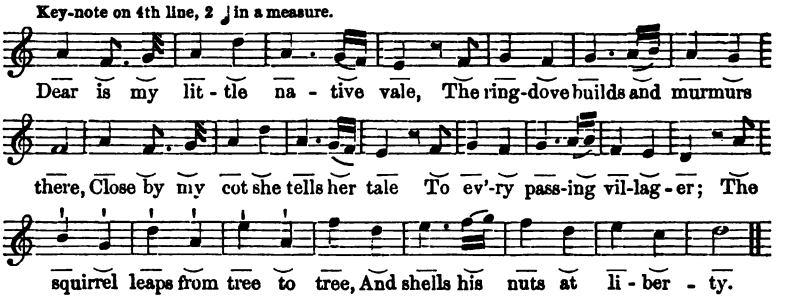
FIG. 5.—EXAMPLE OF IAMBIC RHYTHM.



This rhythm is varied and rendered more effective in the same way as the Trochaic. Examples should be given as before.

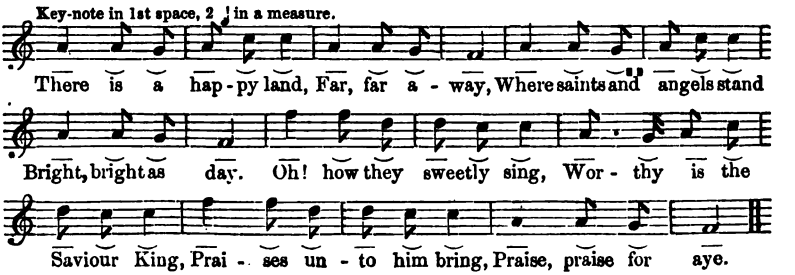
The teacher should next select for practice tunes in which mixed Trochaics and Iambics are expressed in the two-crotchet measure. Fig 6 is an example:—

FIG. 6.—EXAMPLE OF MIXED TROCHAIC AND IAMBIC RHYTHM.



This measure is also employed for the Anapæstic foot, by dividing the first or second beat into two parts. We subjoin an example (Fig. 7):—

FIG. 7.—EXAMPLE OF ANAPÆSTIC RHYTHM.



The measure of two crotchets is the most intelligible of all measures. The exercises should be restricted to it for some time, as recommended by Mr. Rudolf Weber.

The next measure in the order of simplicity is that of four crotchets. This may be explained as a combination of two measures of two crotchets, and a tune should be written and performed in both ways for exemplification. The pupils will make out for themselves that the accent in the four crotchet measure falls on the first and third beats.

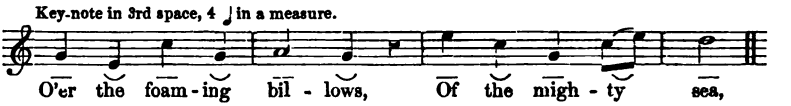
The pupils should now practise tunes in this measure, embodying the different kinds of poetic metre; at first, such as have the most simple form, then gradually such as have more complex forms. The rhythm of the words must always be well brought out in reading before they are joined to the music. The teacher should, in the case of every tune, cause the pupils to observe the correspondence between the rhythm of the music and that of the words, and should notice specially all instances in which the poetic rhythm is brought out with particular force.

It may be objected, that there is not always this exact correspondence between the musical and the poetic rhythm. True; and this circumstance has prejudiced many good people against every species of sacred music that goes beyond the rigorous simplicity of the psalm tune, and has led others to cast ridicule on the highest forms of secular music, in which, owing to imperfect adaptation of English words to foreign music, "the most beautiful graces, quavers, and divisions are bestowed upon *then*, *for*, and *from*, to the eternal honour of our English particles." But we *expect* that the teacher will select compositions in which there *is* this perfect union of music and poetry.

New notes and rests and rhythmical values should be explained as they are met with in the tunes.

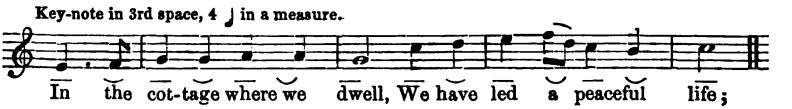
The Trochaic metre, set in the four-crotchet measure, may of course begin either on the first or on the third beat. The following is an instance in which it begins on the first beat (Fig. 8):—

FIG. 8.—TROCHAIC RHYTHM IN $\frac{4}{4}$, COMMENCING ON 1ST BEAT.



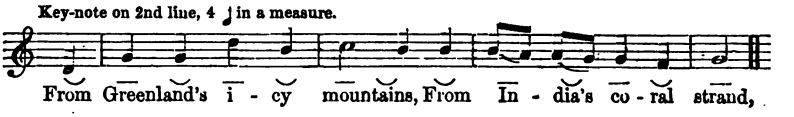
In the subjoined passage the foot commences with the third beat of the measure (Fig. 9):—

FIG. 9.—TROCHAIC RHYTHM IN $\frac{4}{4}$, COMMENCING ON 3RD BEAT.



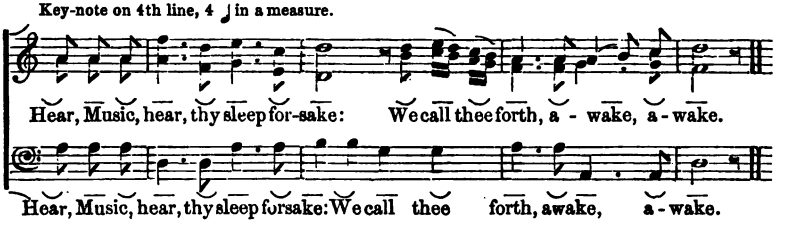
The Iambic metre may similarly begin either on the second or on the *fourth* beat. The following is an instance in which it begins on the *fourth beat*,—the most frequent case (Fig. 10):—

FIG. 10.—IAMBIC RHYTHM IN $\frac{4}{4}$, COMMENCING ON 4TH BEAT.



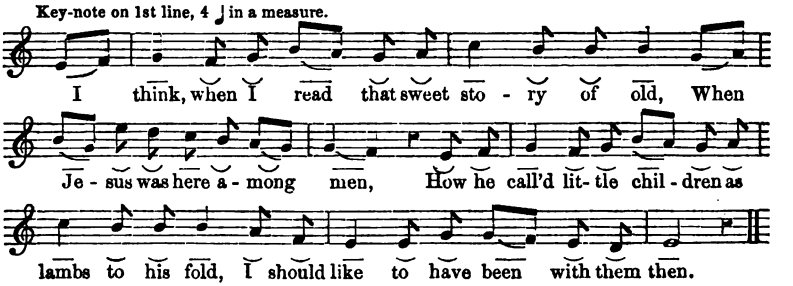
This metre is also frequently begun upon the second half of the third beat, as in the annexed instance (Fig. 11) :—

FIG. 11.—IAMBIC RHYTHM IN $\frac{4}{4}$, COMMENCING ON 2ND HALF OF 3RD BEAT.



The setting of Anapæstic verse in this measure is accomplished in the same way as in the two-crotchet measure, namely, by dividing every other beat into two parts. The following is an example (Fig. 12) :—

FIG. 12.—ANAPÆSTIC RHYTHM IN $\frac{4}{4}$.



The versification would be called irregular by the grammarians; but the melody, in connecting the lines, clears up the apparent irregularities, and throws light on Edgar A. Poe's notion that, in order to perceive the structure of such verse, we must run the lines into one another.

(*To be continued.*)

EFFECTS OF OVER STUDY.—Now, young persons, especially, require both amusement and outdoor exercise, and much more of the latter than most of our young friends are able or disposed to indulge in. The bow which is always kept bent, soon loses its elasticity. The youthful mind, by too much application, becomes either heavy and incapable of healthy exertion, or else, by over stimulation, is rendered visionary, eccentric, and impractical, prone to fanaticism or even to insanity.—*Canadian Journal of Education.*

DRAWING.—No. 2.

HAVING in the previous number briefly shown the value, importance, and utility of Drawing as a grand preliminary step, indispensable for the successful completion of any design of importance, either in the manufactures or arts, and also its great value as a refining source of pleasure, I will proceed to describe the various styles of drawing.

The modes of representing objects by Drawing are two: parallel projection (that is, mechanical drawing) and perspective. The first, employed for engineering and architectural works, is that in which the eye is supposed to be at right angles with every part of the plane represented, and is on that account called parallel projection; and I regret that this style of drawing, which is so absolutely useful and necessary, should be so little studied, the preference being invariably given to that called perspective, which may, comparatively speaking, almost purely be said to be an accomplishment: it is useful to a certain extent, but small indeed in comparison with the former.

If you desire a general view of an object, you can have it in no other style but perspectively or isometrically; but if you wish to enter into details, to know the true proportion, the exact dimensions of the various parts of an object, you must have recourse to parallel projection.

If any one is at all sceptical as to the superiority of parallel projection over perspective for the representation of machinery, or not only machinery, but every object where it is sought to convey the actual proportion and dimensions, instead of a mere general notion, let them refer to the encyclopediæ published in France and in this country above half a century back, where they will find everything illustrated in perspective, and compare such works with the valuable plates of the second edition of Tredgold on the Steam Engine, and Professor Barlow's Treatise on the Manufactures and Arts in the *Encyclopedia Metropolitana.* But perhaps you may imagine, from these remarks, that parallel projection is to be studied to the exclusion of perspective; that I wish to guard you against. You will recollect that I remarked in those objects, when the actual proportions and dimensions were intended to be conveyed, that parallel projection was to be used; but if a general view is required, perspective; consequently the architect, after representing the different plans, the front and side elevations, the longitudinal and transverse sections of a building, showing that the dimensions of the various rooms, the comfort, convenience, elegance, and economy of the design are such as desired, that the person for whom the design may be, may fully understand what the picturesque effect of the building will be when erected, then has recourse to perspective (under those circumstances distinguished by the name of geometrical perspective).

Having thus slightly described the two principal styles of drawing, and the application of each mechanical or parallel projection for engineering, architectural, and useful purposes generally, and perspective for such objects and purposes which are not so generally and absolutely useful, but yet affording great delight, I will briefly describe the course *to be* pursued by those who aim at eventually being able to sketch from *nature.*

After having acquired a certain facility of hand and correctness of eye, so that you can retain in your mind's eye the correct form of an object, and the hand to follow the dictates of the eye, and become conversant with the first principles of light, and shade, and perspective, —for the last two steps the assistance of a master is indispensable,—you may then proceed to the more agreeable and pleasing study of nature; and the subjects I more particularly recommend to be studied, as tending to the success most likely to ensue upon ordinary diligence and application, are weeds, such as the dock, foxglove, nettle, &c.; and to be successful in our first attempts at any study is an important point; for upon our success or otherwise in first attempting any study, we either prosecute it to a successful issue, stimulated by our previous success; but if unsuccessful, so few persons have sufficient energy and resolution to combat failure at the onset, that they discard and throw their studies aside in disgust.

Presuming that you are successful in your study of weeds, you may then proceed to study all such objects in detail that are generally found in a landscape, before attempting composition; for what would be more absurd than to attempt to read before being able to spell, without knowing the alphabet. For this purpose you may then study the character of the foliage of the various trees, placing yourself at such a distance that the leaves do not appear too much in detail, but agreeably massed, and at such a distance that the light, shade, and demi-tint may be easily distinguished.

Representations of landscape scenery have been made for many years by mechanical means, with the aid of the Camera Lucida, a species of box (provided with a mirror and a lens), into which the representations fall, and are therefrom copied by the attendant artist into his sketch-book.

The idea of fixing representations of this kind on the surface on which they fall, by some chemical process, so as to save the trouble of copying, appears to have been entertained by ingenious men, both in France and in England, and at length the possibility of doing so was made known in Paris in January, 1839.

The discoverer was Daguerré, aided by one or two other persons; and from that was called Dauguerrè's type, from the inventor's name.

It is frequently called photography—a word expressive of the process, —that is, drawing by the action of the light.

Some persons, I have no doubt, make use of those photographs in the composition of their pictures; but such a practice is more than questionable, being simply copying, in the best sense of the term, and not trusting to that higher form of tracing and imitating external nature, which must ever distinguish the legitimate artist from the empiric and pretender; besides, such a course of copying nature would be to cancel and put aside all those *great and high advantages* I have before alluded to in the previous number as resulting from observation, contemplation, &c., on the study of nature. The lens doing the work of the eye, and the camera generally being the copyist, except in the first place in fixing the machine, there is scarcely any occasion for lengthened contemplation; and many of those refining, purifying thoughts that most frequently arise upon any lengthened view of nature would be lost. For instance, should the object about to be copied be ruins, and it is well

known how frequently they enter into the composition of pictures, and when artistically treated what sublimely beautiful pictures they make, such ideas as these, probably suggested by lengthened contemplation, would be lost.

Everything is mutable, everything is perishable around us (I am supposing that the object being copied is a ruined abbey or castle); the forms of nature and works of art alike crumble away; and amid the gigantic forms that surround it, the soul of man alone is immortal; and from that, to what an extended, purifying, beneficial influence may the thought be carried. What geology is to us in relation to the early inhabitants of the earth, such are ruins as regards its human habitants. They are history in stone. Those shattered columns, those fallen capitals, and mutilated statues that once rose above the dwellings of the Hundred-gated Thebes, those mounds of rubbish (now shunned—at least until lately—even by the wild Bedouin Arab) that cover the wondrous relics of Nineveh. Those now silent mountains that look down on the lone and ruin-covered plain of Merdasht once echoed back the shouts of the royal Persepolis. Notwithstanding the great ends gained by steam and electricity, ruins are the voice of the past ages chiding the present for its degeneracy.

These and similar thoughts have been suggested to me when copying and sketching a ruined ecclesiastical edifice, and I doubt not many others would experience similar thoughts and feelings, and no one, I can scarcely think, will be found to dispute their refining influence, tending, as they must necessarily do, to enlarge the mind, purify the thoughts, withdraw us from the present and less refining pleasures, inducing us to look into futurity, and preparing us for that brighter and better life which is the grand end and great object of our being.

WILLIAM HOBDAY,
Oct. 7th, 1856. Head Drawing Master,
Weston Academy, Bath.

MORAL TEACHINGS. ILLUSTRATED BY ANECDOTES.—Perceptions of right and wrong belong to childhood, and, like other faculties, should be exercised and prompted to vigorous growth. This requires skilful training. Children tire of direct instruction, and unless charmed by the personal qualities of the teacher, become listless or mischievous. But tell them a story, a biographical anecdote, or historical fact, or let them tell one, and the case is altered. They see something tangible. The precept has its living type, and the moral lesson enters together with the story, and becomes for ever a part of the child's being. A story of this sort, and for this object, once a week, would do much for teachers and pupils, and would call attention to this much-neglected subject. It would compel investigation, and keep all on the alert for next week's lesson.—*Canadian Journal of Education.*

A RATIONAL METHOD OF TEACHING FRACTIONS.

BY CHARLES DACUS HERMANN.

(*Continued from page* 423.)

XIII. *Multiplication of Fractions.*

M. How much are 5 yards taken 3 times?—*A.* 15 yards.

M. £8 multiplied by £7?—*A.* £56.

M. 4×9 pieces or parts of a loaf?—*A.* 36 pieces.

M. 3×4 parts called sevenths?—*A.* 3×4 sevenths$=12$ sevenths.

M. $5 \times \frac{4}{9}$?—*A.* $\frac{20}{9}$, or $2\frac{2}{9}$.

M. Here we have a multiplication of fractions: repeat the last example? What was the fraction to be multiplied?—*A.* $\frac{4}{9}$.

M. What was the product?—*A.* $\frac{20}{9}$.

M. How did you obtain it?—*A.* By multiplying the numerator.

M. We consider, as we often did before, the denominator as a mere name for certain parts of a whole, and this consideration fully justifies our way of multiplying by increasing the real number of the parts. Now multiply the following fractions; if the product is more than 1, reduce it into wholes, and do not forget to reduce the remaining fractions to lower terms, if possible. In mixed numbers, first multiply the fraction as above, then the wholes.

$\frac{3}{17} \times 5$, $\frac{7}{8} \times 3$, $\frac{13}{20} \times 10$, $8\frac{1}{3} \times 4$, $9\frac{7}{10} \times 8$, $25\frac{17}{35} \times 83$, $235\frac{83}{100} \times 24$, $\frac{2}{3} \times 2, 3, 4, 5$, &c. — $8\frac{7}{12} \times 2, 3, 4, 5$, &c. — $52\frac{19}{36} \times 2, 3, 4, 5$, &c. — $854\frac{23}{24} \times 36$.

The master may occasionally observe that there is another mode of multiplying a fraction which may sometimes be made use of, *i. e.*, by dividing the denominator. Reminding the pupils of the nature of that term, and that by lessening or dividing it the parts become greater, he may induce them to give some examples where this mode of multiplication is available, and reason about them like this: $\frac{3}{8} \times 2$. A part twice as large as $\frac{1}{8}$ is $\frac{1}{4}$; therefore, $\frac{3}{4}$ are twice as much as $\frac{3}{8}$. Or like this: $\frac{1}{8} \times 2 = \frac{2}{8} = \frac{1}{4}$; $\frac{3}{8} \times 2 = 3$ times more, $= \frac{3}{4}$.

XIV. *Division of Fractions.*

The division of fractions offers no particular difficulties, after all that has preceded. There are, as for multiplication, two different ways of doing it. The most simple and natural is that of dividing the numerator; but the pupil, after having done several such sums given by the master, will soon perceive that in most cases the numerator is not divisible by the given number, and we must then have recourse to the second method, by multiplying the denominator. In reasoning about these cases, we always first reduce the numerator to 1; as, for instance, $\frac{2}{7} \div 3$? $\frac{1}{7} \div 3 = \frac{1}{21}$, $\frac{2}{7} \div 3 = \frac{2}{21}$.

M. Which are the two different ways of dividing a fraction? Give *examples of each.* Which way is always possible? which not? Do the

following divisions. (In mixed numbers, you begin by dividing the wholes, and reduce the remaining ones to a fraction of the given denominator.)

$\frac{1}{5} \div 4$, $\frac{1}{17} \div 23$, $\frac{7}{8} \div 2$, $\frac{23}{57} \div 17$, $\frac{24}{35} \div 18$, 20, 25, 64, 100.

$2\frac{1}{2} \div 2$, 3, 7, 18; $17\frac{18}{19} \div 4$, 12, 17, 260; $3768\frac{231}{469} \div 17$, 294.

TO MULTIPLY BY A FRACTION.

a.—A Whole Number.

M. How much are 7×11 lb.?—*A.* 7×11 lb. $= 77$ lb.

M. Multiply 8 by 7.—*A.* $8 \times 7 = 56$.

M. 8 by 3?—*A.* $8 \times 3 = 24$.

M. 8 by 1?—*A.* $8 \times 1 = 8$.

M. Now 8 by $\frac{1}{2}$. Do you know what this means, to multiply 8 by $\frac{1}{2}$? —*A.* I suppose it means that I have to take $\frac{1}{2}$ of 8.

M. And how do you find $\frac{1}{2}$ of 8? or one-half of anything else?—*A.* By dividing it into 2 equal parts, or by 2.

M. Therefore $8 \times \frac{1}{2}$ is the same as 8 divided by 2? Now, how would you find $8 \times \frac{1}{3}$, or what is this like to?—*A.* $8 \times \frac{1}{3} = 8 \div 3 = 2\frac{2}{3}$.

M. What does it mean, to multiply 20 by $\frac{1}{5}$?—*A.* $20 \times \frac{1}{5}$ means to take $\frac{1}{5}$ of 20, or divide 20 by 5.

M. Remember, then, that in all these expressions, when we say, "To multiply by a fraction, $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{7}$, &c.," we really mean a division. It is of course not an exact way of speaking to say "multiply" when we mean "to divide;" but it is excusable, and in many cases useful, to retain that expression; and I will show you how it happens that we say so. A man has, for instance, to buy several quantities of cloth at 18s. a yard; he wants 7 yards, 4 yards, 1 yard, $\frac{1}{2}$ yard, and $\frac{1}{8}$ yard. How much has he to pay? You will say, $7 \times 18/$, $4 \times 18/$, $1 \times 18/$; and then—instead of changing your way of speaking, and saying $\frac{1}{2}$ of 18/, $\frac{1}{8}$ of 18/, you continue $\frac{1}{2} \overset{\text{times}}{\times} 18/$, $\frac{1}{8} \overset{\text{times}}{\times} 18/$; or we must multiply 18/ by 7, 4, 1, $\frac{1}{2}$, and $\frac{1}{8}$. In mathematics, we often make use of such expressions, which really mean the contrary of the common signification of the word; thus we say: He owes me -8£, which means, I owe him £8. Now you will at once be able to understand and answer the following and all similar questions:—$8 \times \frac{1}{4}$, $21 \times \frac{1}{3}$, $30 \times \frac{1}{7}$, $13 \times \frac{1}{5}$, $54 \times \frac{1}{9}$, $593 \times \frac{1}{17}$? Say and write like this: $8 \times \frac{1}{4}$ (or $8 \div \frac{1}{4}$) $= 2$, &c. Write the following series:—

$12 \times \frac{1}{2} = 6$.	$30 \times \frac{1}{2} = 15$.	$100 \times \frac{1}{2} = 50$.
$12 \times \frac{1}{3} =$	$30 \times \frac{1}{3}$.	$100 \times \frac{1}{3} = 33\frac{1}{3}$.
$12 \times \frac{1}{4}$, &c.	$30 \times \frac{1}{4}$, &c.	100, &c.

1£. $\times \frac{1}{2} = 10/$.
1£. $\times \frac{1}{3} = 6/$ 8d.
1£. $\times \frac{1}{4} = 5/$.
1£. $\times \frac{1}{5} = 4/$.
1£. $\times \frac{1}{6} = 3/$ 4d.
1£. $\times \frac{1}{7} = 2/$ $10\frac{2}{7}$d. &c.

7/ 8d. $\times \frac{1}{2} = 3/$ 10d.
7/ 8d. $\times \frac{1}{3} = 2/$ $6\frac{2}{3}$d., &c. and many similar series, as well as promiscuous examples.

M. How much is $9 \times \frac{1}{3}$?—*A.* $9 \times \frac{1}{3} = 3$.

M. Instead of multiplying by $\frac{1}{3}$, I now want you to multiply by $\frac{2}{3}$. *Will the* product be more, or less?—*A.* If I multiply by $\frac{2}{3}$, I must get *the double* of what I get in multiplying by $\frac{1}{3}$.

M. This would be?—*A.* $3 \times 2 = 6$.

M. Therefore, $9 \times \frac{2}{3} = 6$. Find out in the same way how much is $10 \times \frac{2}{5}$; $49 \times \frac{3}{7}$? Say once more what it means, and how you find $10 \times \frac{1}{7}$?—*A.* It means 10 is to be divided by 7.

M. Will $10 \times \frac{3}{7}$ be more or less, and how much?—*A.* $10 \times \frac{3}{7}$ will be 3 times more.

M. In order to obtain three times more than if I divided 10 by 7, I divide a number 3 times larger, or 30, by 7, which gives——?—*A.* $30 \div 7 = 4\frac{2}{7}$.

M. Therefore I say, $10 \times \frac{3}{7} = 4\frac{2}{7}$. Let us find out $13 \times \frac{2}{5}$. We might first take $13 \times \frac{1}{5}$, and multiply the result by 2. But you will soon see that in this, and most other cases, it is more simple and easy not first to divide 13 by 5, but a number 2 times as large, or 26, by 5, which gives $5\frac{1}{5}$. By this method, namely, by first multiplying and afterwards dividing, we have to operate with whole numbers only; but if we were to take first $13 \times \frac{1}{5}$, we would find $2\frac{3}{5}$, which must then be multiplied by 2. In large numbers particularly, it is more difficult and complicated to operate with fractions, and we avoid it if possible. Now, say and write down the following examples, and reason about them like this: $15 \times \frac{6}{7}$?—*A.* $15 \times \frac{1}{7}$ means, I must divide 15 by 7. $15 \times \frac{6}{7}$ must give 6 times more. I therefore divide a number 6 times larger, or 90, by 7, which gives $12\frac{6}{7}$. Therefore $15 \times \frac{6}{7} = 12\frac{6}{7}$.

$$19 \times \tfrac{5}{6},\ 27 \times \tfrac{3}{8},\ 47 \times \tfrac{11}{13},\ 215 \times \tfrac{19}{24}.$$

Write the following examples:—

$17 \times \frac{2}{3}$, $28 \times \frac{3}{5}$, $5 \times \frac{11}{12}$, $16 \times \frac{5}{6}$, $32 \times \frac{5}{12}$.

5, 8, 19, 25, 30, each by $\frac{2}{3}$, $\frac{3}{4}$, $\frac{5}{7}$, $\frac{7}{10}$, $\frac{19}{25}$, $\frac{23}{30}$.

1£. $\times \frac{2}{3}$, $\frac{3}{7}$, $\frac{11}{12}$, $\frac{13}{18}$. 17/ 8d. $\times \frac{3}{4}$, $\frac{8}{15}$, $\frac{23}{28}$.

In the latter examples, and all similar ones which the master may find necessary to impress this operation into the mind of the pupil, and give him the necessary practical skill in managing these sums, we follow the above rule by first multiplying 1£. by 2, 3, 11, &c.; the 17/ 8d. by 3, 8, 23, and then dividing the product by the respective denominator.

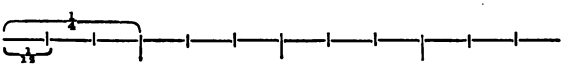
b.—To Multiply a Fraction by a Fraction.

M. How much is $8 \times \frac{1}{5}$; $3 \times \frac{1}{5}$? How do you multiply by $\frac{1}{5}$?—*A.* I divide by the denominator.

M. Multiply now the fraction $\frac{1}{7}$ by $\frac{1}{5}$; what does this mean?—*A.* It means to divide $\frac{1}{7}$ by 5.

M. How do you divide a fraction?—*A.* By multiplying its denominator.

M. Show this once more on a line; prove, for instance, that $\frac{1}{4} \div 3 = \frac{1}{12}$.—*A.*



M. How do you therefore divide $\frac{1}{7}$ by 5?—*A.* By multiplying the denominator by 5, which gives $\frac{1}{35}$.

M. Therefore, $\frac{1}{7} \times \frac{1}{5} = \frac{1}{35}$. How much is $\frac{1}{8} \times \frac{1}{3}$? Reason about your operation.—*A.* $\frac{1}{8} \times \frac{1}{3}$ means I have to take $\frac{1}{3}$ of $\frac{1}{8}$, or divide $\frac{1}{8}$ by 3, *which is done by multiplying* the denominator by 3. Therefore, $\frac{1}{8} \times \frac{1}{3} = \frac{1}{24}$.

M. Say and write down several examples and reasonings like this last. Now state in a few words how you multiply together two such fractions which both have the numerator 1?—*A.* By multiplying their denominators together.

M. $\frac{1}{5} \times \frac{1}{6}$ is therefore —— ?—*A.* $\frac{1}{5} \times \frac{1}{6} = \frac{1}{30}$.

M. $\frac{1}{5} \times \frac{1}{5}$?—*A.* $\frac{1}{5} \times \frac{1}{5} = \frac{1}{40}$.

M. Instead of multiplying $\frac{1}{5}$ only, as in the last instance, multiply $\frac{3}{5}$ by $\frac{1}{5}$; what would be the result, more or less?—*A.* 3 times as much, or $\frac{3}{40}$.

M. Therefore $\frac{3}{5} \times \frac{1}{5} = \frac{3}{40}$. How much is $\frac{1}{10} \times \frac{1}{7}$?—*A.* $\frac{1}{10} \times \frac{1}{7} = \frac{1}{70}$.

M. $\frac{9}{10} \times \frac{1}{7}$?—*A.* $\frac{9}{70}$.

M. $\frac{7}{8} \times \frac{1}{4}$, $\frac{7}{10} \times \frac{1}{6}$, $\frac{13}{29} \times \frac{1}{3}$? Now again, $\frac{4}{5} \times \frac{1}{3}$?—*A.* $\frac{4}{5} \times \frac{1}{3} = \frac{4}{15}$.

M. Instead of multiplying by $\frac{1}{3}$ only, I want you to multiply by $\frac{2}{3}$; what would be the product, more or less?—*A.* $\frac{4}{5} \times \frac{2}{3}$ must be 2 times as much as $\frac{4}{5} \times \frac{1}{3}$, or $\frac{8}{15}$.

The master now gives several more instances, and then induces the pupil to state the rule. In order to multiply two fractions together, I multiply the numerators and denominators severally together.

M. Answer the following questions, and prove you are right:—$\frac{7}{11} \times \frac{2}{3}$, $\frac{7}{13}$ by $\frac{5}{8}$, &c.?—*A.* $\frac{1}{11} \times \frac{1}{3} = \frac{1}{33}$ (which may be even further proved as above); $\frac{7}{11} \times \frac{1}{3} = \frac{7}{33}$, $\frac{7}{11} \times \frac{2}{3} = \frac{14}{33}$.

The multiplication of mixed numbers by a fraction, or of mixed numbers by another mixed number, offer no real new difficulty; the operations are only longer and more complicated. We either reduce the mixed numbers to fractions, which brings all these cases under the preceding rule, or multiply severally by the wholes and fractions. As—

a) $3\frac{1}{2} \times \frac{7}{8} = \frac{7}{2} \times \frac{7}{8} = \frac{49}{16} = 3\frac{1}{16}$; or,

$3 \times \frac{7}{8} = \frac{21}{8}$, $\frac{1}{2} \times \frac{1}{8} = \frac{1}{16}$, $\frac{21}{8}\left(\frac{42}{16}\right) + \frac{7}{16} = \frac{49}{16} = 3\frac{1}{16}$.

b) $11\frac{7}{9} \times 4\frac{4}{5} = \frac{106}{9} \times \frac{24}{5} = \frac{2544}{45} = 56\frac{24}{45} = 56\frac{8}{15}$; or,

$$
\begin{array}{lll}
 & 11\frac{7}{9} & \\
 & 4\frac{4}{5} & \\
\hline
 & 44 & \overset{45}{\smile} \\
 & 3\frac{1}{9} & 5 \\
 & 8\frac{4}{5} & 36 \\
 & \frac{28}{45} & 28 \\
\hline
 & 56\frac{8}{15} & \frac{69}{45} = 1\frac{24}{45} = 1\frac{8}{15}.
\end{array}
$$

TO DIVIDE BY A FRACTION.

It will be advisable to begin this chapter likewise by first explaining the real meaning of the expression, "To divide by a fraction." The term division signifying a separation or cutting into several equal parts, it essentially excludes the idea of any such operation by a fraction. We may indeed divide by 2, 3, 7, or any whole number; that is to say, we may make 2, 3, 7, or more equal parts of a whole, but we cannot divide *by* $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{7}$, or cut into $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{7}$ part. This would have no direct real *meaning* at all. But as we are induced by analogy (as we have shown

above), to use expressions like this, $4 \times \frac{1}{7}$, $8 \times \frac{2}{3}$, so it it with the term "dividing by a fraction." The question and subsequent reasoning which induce us to such an anomalous way of speaking, are, for instance: We have a cart-load, say 25 cwts., of sand to spread over 3, 7, 20, $\frac{1}{2}$, $2\frac{3}{4}$ square yards of ground; how much would come to each square yard? We would correctly say and reason: Divide the 25 cwts. by 2, 7, 20,—and then, for analogy's sake, in order to use the same words,—we would continue: divide by $\frac{1}{2}$, by $2\frac{3}{4}$, though these latter expressions are really improper, as we cannot divide into $\frac{1}{2}$ or $2\frac{3}{4}$ parts. The proper demonstrations in the latter cases would run thus: If we had $\frac{1}{2}$ $(2\frac{3}{4})$ square yards to cover, and want to put 1 cwt. on each square yard, it requires $\frac{1}{2}$ $(2\frac{3}{4})$ cwts. If we have twice or 3 times that weight, we may put on each square yard 2, 3 cwts., and in general as many times as we have $\frac{1}{2}$ $(2\frac{3}{4})$ cwts., so many cwts. we may put on each square yard; or we must find how many times $\frac{1}{2}$ $(2\frac{3}{4})$ cwts. are contained in the whole weight. This, then, is the real meaning of the expression we are speaking of; to divide by $\frac{1}{3}$ signifies to find how many times $\frac{1}{3}$ is contained in a certain number. Whether we divide by 2, 7, 20, &c., or whether we seek how often 2, 7, 20, are contained in a certain number, the result is the same; we obtain the same figures, although the answer must be framed in somewhat different words. But we should, from a general principle already mentioned, always object to the use of expressions which do not exactly and properly convey our ideas, unless we are, as here, led by other considerations, and fully understand the real meaning of our words; but besides this precaution, the definition above given is very useful, if not quite necessary, for understanding the following operations, and reasoning about them.

a.—To Divide Wholes by a Fraction, with the Numerator 1.

M. Distribute 15/ amongst three persons, how much will every one receive?—*A.* 5/.

M. Divide the same sum amongst five persons.—*A.* Each receives 3/.

M. Now amongst two persons.—*A.* Each gets $7\frac{1}{2}$/.

M. Divide 8 by 2, 4, 3. Now divide 8 by $\frac{1}{3}$. Mind, I do not say by 3, but by $\frac{1}{3}$. Do you understand what I mean in saying, Divide 8 by $\frac{1}{3}$? I must tell you that this is not a proper way of speaking, and you will easily see that we ought not to say so. For we may divide anything or any sum into 2, 3, 4, or more equal parts, cut a stick into 2, 3, 4, or more pieces, but we cannot divide into less than 2 parts, or break a stick into less than 2 pieces. We cannot even divide by 1: there would be a contradiction in saying, I make parts or divide, but leave the whole together. Still less may we then divide into $\frac{1}{2}$, $\frac{1}{3}$ pieces or parts, or divide by $\frac{1}{2}$ or $\frac{1}{3}$. The real meaning, then, of my question, to divide 8 by $\frac{1}{3}$, is, to find how many times $\frac{1}{3}$ is contained in, or may be taken from, 8. (If the master finds it advisable, and his pupils sufficiently advanced to follow the demonstration, he may now or afterwards show, by the example of square yards which we used above, or any other similar one, how we are induced to use the expressions in question.)

M. We have, then, to find how often is $\frac{1}{3}$ in 8. How often is 4 in 8?—*A. 2 times.*

M. 2 in 8?—*A.* 4 times.

M. 3 in 8?—*A.* $2\frac{2}{3}$ times.

M. 1 in 8?—*A.* 8 times.

M. But $\frac{1}{2}$? What can you take away oftener, 1 whole or $\frac{1}{2}$?—*A.* I may take away $\frac{1}{2}$ twice as often as 1 whole.

M. Why?—*A.* Because it is twice less than 1 whole.

M. 1 is contained in 8, 8 times; how many times, therefore, $\frac{1}{2}$?—*A.* $\frac{1}{2}$ in $8=8\times2$, or 16 times.

M. We say, then, $8\div\frac{1}{2}=16$. Let us divide 3 by $\frac{1}{7}$. What does this mean?—*A.* I have to find how many times $\frac{1}{7}$ is contained in 3.

M. How many times is 1 in 3?—*A.* 3 times.

M. Remember that you always in these examples, as in all cases of division, when you want to prove the correctness of your operation, begin with the unity. Is $\frac{1}{7}$ contained in 3, more or less than 1?—*A.* 7 times more.

M. 1 being in 3 contained 3 times, how many times will $\frac{1}{7}$ be in the same number?—*A.* $3\times7=21$ times. Therefore we say $3\div\frac{1}{7}=21$. (Illustrations on lines are easy in all these cases.)

M. Now divide 8 by $\frac{1}{5}$, and reason about it.—*A.* $8\div\frac{1}{5}$ means how many times is $\frac{1}{5}$ contained in 8. 1 in $8=8$ times, $\frac{1}{5}$ in 8 is 5 times more, $8\times5=40\therefore 8\div\frac{1}{5}=40$.

To impress this demonstration on the mind of the pupil, a great many examples are to be repeated and written down; as for instance,

$8\div\frac{1}{2}$, $5\div9$, $13\div\frac{1}{11}$, $27\div\frac{1}{3}$, $87\div\frac{1}{23}$.

8 in. $\div\frac{1}{3}$ in., 9d. $\div\frac{1}{4}$d., 17 miles $\div\frac{1}{10}$ mile, 45 hours $\div\frac{1}{15}$ h.

3£. 18/ $\div\frac{1}{8}$/, 7 f. 6 in. $\div\frac{1}{10}$ in., 27 years 7 m. $\div\frac{1}{5}$ m. etc.

How often can I take $\frac{1}{4}$ of an ounce from 3 lb. 14 oz.; from 2 cwt. 87 lb.? A. has 2 gallons 3 quarts 1 pint; how many glasses holding $\frac{1}{8}$ of a pint may he fill out of his store?

b.—By Fractions with Numerators greater than 1.

M. Can you take away $\frac{2}{5}$ oftener or less than $\frac{1}{5}$?—*A.* $\frac{1}{5}$ I can take away oftener than $\frac{2}{5}$. The larger a quantity, the less often I can take it from another given quantity.

M. How often is $\frac{1}{5}$ in 8?—*A.* $8\div\frac{1}{5}=40$.

M. How often will therefore $\frac{2}{5}$ be in 8?—*A.* Twice less, or 20 times. (An illustration on lines may be resorted to.)

M. Find out $3\div\frac{4}{7}$, $11\div\frac{2}{3}$, $25\div\frac{3}{4}$, &c., and reason about your operations.—*A.* $3\div1=3$, $3\div\frac{1}{7}=21$, $3\div\frac{4}{7}=\frac{21}{4}=5\frac{1}{4}$; and a great many other examples.

M. Now divide the following sums by 1—or, to speak more properly, find how many times 1 is contained in each: 3, 8, 23, &c. What is the result?—*A.* Just the numbers given; as $3\div1=3$, $8\div1=8$.

M. Divide the same numbers by $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{7}$, $\frac{1}{10}$, &c.; what is now the result?—*A.* 2, 3, 7, 10, &c. times as much.

M. Then, in order to divide by $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{7}$, &c., you multiply the given quantity by the respective denominators? Express this rule in exact words.—*A.* If I have to divide a quantity by a fraction with the *numerator* 1, I only multiply by the denominator.

M. Divide the above numbers by $\frac{2}{3}$, $\frac{3}{7}$, $\frac{2}{10}$, &c.; then by $\frac{3}{7}$, $\frac{3}{10}$, &c.;

what will now be the result?—*A.* 2 and respectively 3 times less than before.

M. Consequently we must divide by the respective numerators. We have, therefore, found the general rule: To divide by a fraction, or, more properly speaking, to find how many times a fraction is contained in a certain number, we multiply by the denominator and divide by the numerator. Repeat the rule about multiplying by a fraction. You see that in this case we operate quite in a contrary way with each term of the fraction, and this circumstance led persons to the mechanical rule: To divide by a fraction, turn the fraction over; that is to say, make its denominator—numerator, and its numerator—denominator, and operate as if you had to multiply. Thus: $8 \div \frac{1}{3} = 8 \times \frac{3}{1} = 8 \times \frac{1}{3}$; $7 \div \frac{2}{5} = 7 \times \frac{5}{2}$; $357 \div \frac{7}{15} = 357 \times \frac{15}{7}$; 18 lb. 7 oz. $\div \frac{3}{11}$ = 18 lb. 7 oz. $\times \frac{11}{3}$.

M. Do the following divisions; say and write down your reasoning about some of them. Remember that dividing by a mixed number is not more difficult than to divide by a single fraction, as mixed numbers must always be reduced to fractions; as, $8 \div 2\frac{1}{2} = 8 \div \frac{5}{2}$.

$5 \div \frac{2}{3}$, $17 \div \frac{3}{8}$, $14 \div \frac{4}{5}$, $23 \div 1\frac{1}{2}$, $18 \div 2\frac{2}{3}$, $100 \div \frac{2}{5}$, $\frac{5}{6}$, $\frac{10}{13}$, $2\frac{2}{7}$.

$2387 \div \frac{7}{10}$, $3\frac{3}{5}$, $24\frac{17}{30}$. 18 ft. 7 in. $\div \frac{1}{5}$, $\frac{2}{9}$, $1\frac{1}{2}$, $3\frac{2}{5}$, $5\frac{7}{10}$, &c.

Begin your reasonings with 1. *d.* $5 \div 1 = 5$; $5 \div \frac{1}{3} = 3$ times more $= 15$, $5 \div \frac{2}{3} = 2$ times less $= 7\frac{1}{2}$ $\therefore 5 \div \frac{2}{3} = 7\frac{1}{2}$. How many days will 17 gallons 3 quarts last, if you use daily $\frac{3}{4}$, $2\frac{1}{2}$ quarts, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{5}{16}$, $1\frac{1}{2}$, $7\frac{3}{4}$ pints? &c.

c.—Fractions divided by Fractions.

M. How many times is 1 in 5, in 2, in 1, in $\frac{1}{3}$? Is 1 entirely contained in $\frac{1}{3}$; can you take a whole lb. from $\frac{1}{3}$ lb.?—*A.* Not entirely, but only $\frac{1}{3}$.

M. We say, therefore, 1 is in $\frac{1}{3}$ contained $\frac{1}{3}$ times, or $\frac{1}{3} \div 1 = \frac{1}{3}$.

M. $\frac{1}{5}$, $\frac{1}{7}$, $\frac{2}{7}$, $\frac{1}{13}$, $\frac{8}{13}$, divided by 1?—*A.* The result is always the given number, $\frac{1}{5}$, $\frac{1}{7}$, $\frac{2}{7}$, $\frac{1}{13}$, $\frac{8}{13}$.

M. Now divide the same fractions by $\frac{1}{2}$. Is $\frac{1}{2}$ contained oftener than 1 whole?—*A.* Twice as often.

M. Therefore the result is ——?—*A.* $\frac{2}{5}$, $\frac{2}{7}$, $\frac{4}{7}$, $\frac{2}{13}$, $\frac{16}{13}$, &c.

M. Divide by $\frac{1}{3}$, $\frac{1}{7}$, $\frac{1}{10}$. How will the result change?—*A.* It will be 3, 7, 10 times larger: $\frac{3}{5}$, $\frac{3}{7}$, $\frac{6}{7}$, $\frac{3}{13}$, $\frac{24}{13}$, $1\frac{11}{13}$; $\frac{7}{5}$ or $1\frac{2}{5}$, $\frac{7}{7}$ or 1, $\frac{14}{7} = 2$, $\frac{7}{13}$, &c.

M. Divide $2\frac{1}{3}$ by $\frac{1}{5}$, and reason about it.—*A.* $2\frac{1}{3} = \frac{7}{3}$; $\frac{7}{3} \div 1 = \frac{7}{3}$; $\frac{7}{3} = \frac{1}{5} = \frac{35}{3} = 11\frac{2}{3}$ $\therefore 2\frac{1}{3} \div \frac{1}{5} = 11\frac{2}{3}$; and many similar practices.

M. Divide once more $\frac{2}{5}$ by 1, then by $\frac{1}{3}$.—*A.* $\frac{2}{5} \div 1 = \frac{2}{5}$, $\frac{2}{5} \div \frac{1}{3} = \frac{6}{5}$.

M. Are $\frac{2}{3}$ contained more than once in $\frac{1}{3}$?—*A.* No; twice less.

M. You see, then, that in order to find how many times $\frac{2}{3}$ are in $\frac{2}{5}$, we must divide the last result $\frac{6}{5}$ by 2, which gives $\frac{6}{10} = \frac{3}{5}$. Therefore $\frac{2}{5} \div \frac{2}{3} = \frac{3}{5}$. By repeating the same operation and demonstration, the pupil will find that, in all cases where we have to divide by a fraction, we multiply by the denominator and divide by the numerator, as in the preceding paragraph, and therefore the said mechanical rule of inverting the divisor is always available.

M. Do the following divisions, and reason about some of them:—

$\frac{2}{3} \div \frac{5}{11}$, $\frac{6}{7} \div \frac{2}{5}$, $\frac{8}{15} \div \frac{4}{5}$, $\frac{17}{28} \div \frac{13}{31}$, $1\frac{1}{2} \div \frac{3}{7}$, $\frac{5}{8} \div 2\frac{1}{2}$; $7\frac{3}{8} \div 3\frac{3}{5}$; $37\frac{13}{15} \div 24\frac{19}{25}$. How often are $2\frac{1}{3}$ in. in $8\frac{1}{4}$ in., $23\frac{7}{8}$ in., 9 ft. $6\frac{7}{10}$ in.; $23\frac{5}{8}$ yards in $7\frac{3}{4}$, $149\frac{1}{2}$, $3654\frac{7}{12}$ yards?—*A.* $\frac{2}{3} \div 1 = \frac{2}{3}$; $\frac{2}{3} \div \frac{1}{11} = \frac{22}{3}$; $\frac{2}{3} \div \frac{5}{11} = \frac{22}{15} = 1\frac{7}{15}$, &c.

(*To be continued.*)

SUNDAY READINGS.—No. 3.

WE speak of nations having lives, flourishing or falling, growing or decaying; and we know that these great changes in the world's affairs are part of God's will and purposes, and regulated by Him, as well as those things in our own lives which are great and important to us: we speak, too, of the character of nations; for there are nations who, generally at least, fear God and do justice, and there are others who cast God aside. Now, we are told in God's own Word, that every sin meets with its punishment, and every better act with its reward: we know how it is so with men; the rewards and punishments are deferred till hereafter; but with nations it is not so—they have no hereafter—when they cease from earth, they will not be continued in another world (God teaches us this); the men, women, and children who compose the nations will appear again together, after the grave has closed upon their bodies, but nations and distinctions of people will then be known no more. How then are their deeds to be requited? Is there no time of reckoning for them? There is; but it is all in this world. The whole existence of nations now extinct is pictured out on the ever-varying page of history; and we may there expect to see, in characters that cannot be misread, the whole account of the causes which have brought God's favour to some and His judgments upon others. We may see how a wicked nation has found, during its existence, troubles and chastisements, and perhaps an inglorious, perhaps a terrible end: some seem to pass off unnoticed, some to fall with a crash such that the whole world could hear. We can, too, turn from these, and see another nation deserving better things, filling a better place among those which are gone by. This is one of the noblest lessons that history can teach us; one that it is worth our while to learn, for it stands forward in many forms. This too supplies strength to patriotism: for men know that if their country deserves glory, she will have it according to her measure and her powers; that noble deeds and labours of a people cannot be thrown away. So is God's law. Though we cannot understand all now, yet we shall know all hereafter.

The ancient heathen had a grand theory (for it was nothing more) that Nemesis, or the vengeance of Heaven, worked out upon every man, before the end of his life, a retribution for everything by which the majesty of Heaven had been offended; and passages in Scripture (in Psalm xxxi. for instance) have been by some persons considered to set forth the same. It is true that God sometimes does send signal and unmistakable punishments, even in this life, upon individuals, to teach a lesson to all; sometimes indeed we can point to one man or another, and say, "Behold the hand of God: behold how, even in this world, vengeance lights upon the guilty!"—but it is not always so. God often gives renown and prosperity, with what men call happiness, down to the very end of life (so far as the eye of man can tell), to wicked and ungodly men; and very often, indeed, to those whom He uses, though unworthy in themselves, as instruments in His great works. So we must not *judge* by what is outward; nor indeed would we expect to find this *world's* dignities distributed as God's rewards, if we remembered how

Satan says that the kingdoms of the world and the glory of them are delivered unto him, to give to whomsoever he will.

In these, the histories of individuals, we cannot, but in those of nations we can, see God's certain justice, bringing the mighty dramas to their wonderful end. So the Jewish nation rose, flourished, and fell; so the Persian empire: and we might speak of other countries, did not our thoughts now draw us more naturally to our own.

We are England now: England has risen, she is flourishing, may it not yet be the time for her fall. We have in this country blessings and privileges which, though we may not ourselves as yet have learnt to notice them, are still noticed by the citizens of other countries, who would, if it were possible, purchase them at a great price for themselves and even expose themselves to danger if they could thus secure them to their descendants. For these we are indebted, under God Himself, to our ancestors, who fought and shed their blood that we might dwell in peace; yet these our blessings are to be held by us as a heritage and trust, that we may transmit them to our successors, for them too to improve, and hand down to ages yet unborn. Who would not wish to aid in preparing happy times for generations to come? We can all do so; our country's good rests in the hands of us all; our work begins at once, and will continue as long as we live; whatever we do will contribute its part either to our country's good or to her evil. Though there always are, and always must be in every country, some men much greater than the rest, to whom all look up, and who are considered to hold in their hands their country's fortunes, yet there are others, and hundreds of others, though their names may be less known, who are working with unmeasured influence on all around them; and on such influences the character of a people as a whole mainly depends. It depends on every one in private life; whose actions, habits, words, and thoughts have their influence, first, of course, on those with whom we are closely connected, and thence through the whole length and breadth of a land, wider than any can foresee. Among this number we shall be, and while we are labouring, as is our duty, in the conditions in which God may place us, let not our country be forgotten; for she is to us as a mother,—as in her glory, so in her faults, we share; and that God may bless her, should be the prayer of us all, not only as patriots and Englishmen, but also as Christians.

England has had events in her life; she has suffered and survived many troubles: it would seem that even within the last few years she has been visited with all four of the sore judgments which God speaks of by the mouth of Ezekiel,—judgments from which, when God sends them for destruction, none can escape but such men as Noah, Daniel, and Job; and where are such men now? But we trust to God's long-suffering mercy—(may He remember it in His wrath!), that though England may be now receiving punishment for her unworthiness and offences; though she may be lying under God's heavy hand, yet that our troubles and judgments may come upon us, not to punish to the utmost, but only to remind us of what may be, and to give us a foretaste of what will be, if heavier fate should be deserved. To this great and mighty country, the troubles which are passing over our heads are but as slight illnesses to a healthy man: they warn that everything is not as it ought to be, and *they call* upon us to watch. If they have this effect, instead

of troubles they will be blessings: but let us not disregard them; let us not think, that while kingdoms are breaking around us, we cannot suffer too. Were it not for the honest pride with which we can look on our native land, not so much on its glory in the eyes of the other nations of the world, as on the improved state of society at home, which, by comparison with what we read of things as they were a generation ago, seems indeed an awakening to life rather than that dull lethargic sleep which, whether in the things of the body or in those of the soul, is always a precursor of death,—were it not for this, when we think of the judgments which have come upon us, and look forward to anticipate the trials which are even now hovering over us, we might indeed despair, and almost join with those who already begin to cry, "The glory has departed from England." But let us have more courage: England gave birth to Constantine, the first Christian emperor of Rome; in England reigned Lucius, the first Christian prince who ever ruled over men; let us accept the omen;—while she is Christian England, she will be England still; still she continues, and will continue, to hold up on high the glorious light, and to spread it abroad; the country whose soil has for ages never been profaned by hostile foot, whose children have in past times so bravely resisted tyranny, will contend, as she is contending, by the strong arm if it must be so, in the cause of freedom for others. May a blessing be upon her work, for her mission is not yet accomplished; and though she may have felt, and be feeling now, things hard to be borne, her children will acknowledge them as not yet judgments, but warnings.

Let us wait for one word more. Whatever judgments afflict or ruin our nation (which may God in His long-suffering mercy and goodness defer at least till we are in our graves!)—yet whatever may come, may they find us prepared, conscious that we have done our part to keep them off; and conscious, too, that our happiness, our kingdom, and our country, are on higher ground than earth, while we look to the well-foundationed city that cannot be moved, whose builder and maker is God on high.

There is a pair of pictures by Landseer, entitled "Peace," and "War." The one represents a battle-field when the conflict has just ended: a dead horse lies in front, human bodies around, a dismounted cannon, foul birds of prey, and forms of death on all sides. The other represents the same ground some years after: the red rain has made the harvest grow with abundant crops, and a sheep stands by the dismounted cannon, near which the dead horse was lying. We need not doubt which is Peace and which is War. We might draw the comparison more vividly, if, by the aid of records from ancient and modern history, or from our own times, we were to depict the horrors of war even in its triumphs. Soldiers tell us that the battle-field is a less dreadful sight than the sacking of a conquered town—when the worst passions of man's nature are inflamed, and rage without restraint. It is said that at Badajoz, many of the victorious soldiery were cut down by the hands of their own officers before discipline could be restored.

War has been of late the subject common to every English tongue,

when, after thirty years of peace, the martial spirit once again roused the nation. We are glad that its sound is no more around us; and long may it suffice us, as the strong man armed, to keep our house, that we may be in peace. Let us hang up our laurel wreath in memory of victory; intertwined, though it must be, with many a branch of funereal cypress, in memory of those brave men who have perished for our sakes, on the battle-heights, or among the inhospitable snows—in memory of many a broken family circle that cannot share in the nation's joy. Henceforth, in quietness and confidence may our strength be: there is none that fighteth for us but the God of battles, and may He defend the right!

There will be a time when wars shall cease: it will not be yet. Until the growth of better things shall remove, or God himself, in the fulness of time, shall suddenly bring to an end, the evil tendencies of human nature, which we share with the brute beasts,—biting and devouring one another. Until the reign of peace shall begin, there will be contentions and strife on earth, as there have been from the time of Cain until now. Until justice has established a stronger power, might will make right among many nations, and arbitrations will be in vain.

Great conquerors and leaders of armies in all ages have had, in spite of all that their admirers may say, the desire of their own personal glory as their one great motive,—to leave a name at which the world should grow pale; to be enrolled among the Nimrods, the mighty hunters of men;—but such glory is a selfish glory, purchased, as it must be, by the blood and misery of thousands of others. What do we admire in the brave soldier? His obedience, firmness, and courage. These are not the days when bloodshed alone is courage. Our courage is often tried; we can have the glory without the guilt. In obedience and firmness, we may consider that the Roman sentinels—whose skeletons were found at Herculaneum; who remained at their post while the city was being overwhelmed around them—perhaps excelled, at all events equalled, any other Roman soldiers who have received glory for remaining firm and unmoved in the shock of battle. And if we remain firm at the post of our duty, while fears and temptations to desertion are around us, we too rival their obedience and firmness.

Who has not read and admired the conversation between Rebecca and the Templar in "Ivanhoe"? Yet who does not feel a respect, a sympathy, and even a love, for the beautiful things that are now gone by in the ages of chivalry? Whatever may have been their faults, we cannot but admire in them noble principles and high aims; we cannot but be stirred by the lays of their minstrels, telling of deeds of arms, of love, generosity, and courage; and sometimes, indeed, rising into loftier strains, inspired, in the words of one of themselves, not as the heathen bards, from dreaming on Parnassus, but from Calvary. We can figure to ourselves the knights riding out prepared to meet whatever adventure might fall in their way. And when we read of their conflicts in the wildernesses with the monsters of earth, or the powers of enchantment, we may think of comparing them with a Christian Knight of the Cross, and his conflicts with the varied forms of evil which start up around him. When we read of the knights each maintaining against all doubters, the superiority of their own lady-love, we may do well to catch

some even of that spirit, and stand forward as bold champions of what we, in a higher sense, hold dear and peerless.

Yet we must not lose ourselves in dreams; nor yet need we grieve that such things are lost altogether: as though tournaments, and steel armour; the gleam of the lance, sword, and battle-axe, or the clang of the war-horse's bit, were essential to true chivalry: in its most glorious form it may flourish among us still.

We may not call it entirely superstition that invested knighthood with a religious character; that consecrated the white robe of the aspirant-squire, and the midnight watching of his arms; that gave to the knight himself his title in the name of God; and taught the warriors to stand with unsheathed swords when the Gospels or Creeds were read in the services of the Church. Let us forget the many blots upon their shields, and yet honour them where honour is deserved. A knight's word was considered inviolate,—a true knight scorned a lie. To redress injuries, to take part with the weak against the strong; to seek, like Achilles, glory for glory's sake; to be faithful in all things; to show courtesy in peace or war; to show charity and munificence to the poor,—such was a knight's oath and obligation: legends and stories of olden times will tell us how these oaths were fulfilled. F. I.

THE GOOD OF THE CHILD IN THE MASTER'S HEART.—The master must thoroughly convince the child that he teaches for his good; that he punishes, if need be, for the same purpose, and for that alone. Mere words will not cause this conviction; there must be something more: the child must so read the master's character that he must be at once assured that the infliction of pain unnecessarily would be abhorrent to his nature. It may be that the child will not dwell upon this at the time, but in after-years the thought will return to him, and his appreciation of all the moral instruction which he has received will be greatly regulated by the impression that has been left upon his mind, that his master was a man kind in disposition and tender in heart.—*The Rev. J. Freeman.*

TEACHING AND TRAINING.—Many teachers fail to accomplish what they wish, because they do not understand the difference between *teaching* and *training*. "To *teach* is to communicate instruction, to impart information; to *train* is to *exercise*, to *discipline*, to *teach and form by practice*," says Webster. With those who are already educated, measurably, mere *teaching* or precept may suffice; but for young persons, those who are *to be educated*, *training*, practice, must be superadded, or much of our labour will be lost.—*Canadian Journal of Education.*

EDUCATIONAL MISTAKES.

THE advance of education is the great aim of good men in the present age; a desire for knowledge is beginning to pervade all classes. We cannot, as our ancestors were content to do, sit down and dream away our lives in ignorance, enlivened by the scandal and *grossièretés* of society at home, and by war and strife abroad.

"Let education be national," say one party; "let the children of rich and poor meet together in their early days on common ground, with a common instructor." "Let it be appropriate to the various ranks of society, and beware how you destroy the distinctions of classes," says a second. "Give all the knowledge you can," argues a third party, "to all, but let it conduce to some useful end. Do not attempt to teach the artisan or labourer astronomy or mathematics, for instance;—not that an acquaintance with these sciences will in themselves do him harm, for all knowledge enlarges and elevates the mind, but because they will occupy the time that ought to be devoted to other subjects more conducive to his real happiness."

The speeches, pamphlets, and works that have been spoken and written on this subject, are innumerable; and yet there is one point, an examination of which would materially assist us in forming a correct judgment, and which does not appear to have received the consideration it deserves —that point being, a study of the history and progress of education in previous ages of the world. By examining this, we should more accurately discover what are the natural results of certain courses of action, and may conclude that if we fall into the same paths, similar results will ensue; and thus may we avoid similar evils and shortcomings. Such an inquiry would indeed be impossible within our present limits; but we may, by touching slightly on a few of the more salient points, induce some abler pen to undertake the work.

The first thing that strikes us in the educational system of the Old World is the spirit of exclusiveness and mystery by which they were pervaded. The secrets of knowledge were confided to the initiated only, while the mass of the people received little or no instruction, and consequently sank gradually lower and lower in ignorance, and its attendants, superstition and slavishness. Thus a wide chasm was established between the common herd and the favoured few, who knew full well the meaning of that axiom of modern days, "Knowledge is power." But now, what were the results of this line of conduct? We must turn to the pages of history for information, and we shall there be struck with the singular difference between the characters of ancient and modern civilization. The modern possesses in itself the seeds of progress and advance,—the ancient the principle of stagnation. Nor could it be otherwise; though the intellectual superiority of the rulers might for a time be sufficient to guide and direct the nation, to lead them on to conquest, and make them powerful amongst surrounding peoples, yet the tools with which those rulers worked, viz. the ignorant masses, were deteriorating generation by generation; for it is a known fact, that the human intellect cannot stand still,—it must either advance or retrograde. The history of Egypt is a striking exemplification of this fact. Once the most powerful

and learned nation of the world, it became the basest of kingdoms. Her mental strength was crushed by superstitious ignorance. Can we therefore wonder that her physical energy, left unaided, degenerated in the same ratio, and that conqueror after conqueror imposed his heavy yoke upon her neck, almost without resistance?

But the spirit of exclusiveness is of too fascinating a character for the favoured few, not to have taken a deep hold on the human mind. When Europe emerged from the night of the dark ages, we find the possession of knowledge almost exclusively confined to the cloister. Perhaps this was as much the fault of the laity as of the clergy, but the result was the same,—a preponderating influence possessed by the intellectual class over the minds of the people generally. This undue amount of power was, however, fortunately repressed by a series of events producing an enormous mental revolution in the history of modern Europe. These events were the Crusades, which, though encouraged by the ecclesiastical hierarchy of the middle ages, yet sapped its power by introducing greater freedom of thought, and disseminating amongst the masses the stores of knowledge gleaned so plentifully by the Crusaders in their Eastern wars; and thus Peter the Hermit, in his fanatic zeal, took the first step in the grand movement which terminated in the Reformation.

The spirit of exclusiveness was not, however, yet destroyed. Even at the present day, we find traces of it lurking about in remote corners of our own land; and fifty years ago it was much more openly acknowledged. The landed proprietor, while seated in his luxurious library, did not then blush to say that the poor man needed little education. If he could *manage* to read and write, that was enough, and better than knowing more. Further education would raise him out of his station; and then, if the gentleman was of a melancholy temperament, he prophesied that the ruin of the country would soon follow such a catastrophe. Happily, this is a mode of reasoning now hurrying on to its destined abyss among the things that have been; but the struggle ere it was subdued was like that of Hercules and the hydra-headed serpent.

Having thus traced the results of one educational error, let us see whether history cannot give us some further lessons on other points which may be applicable to the present day; and for this purpose we will turn to the history of Greece. What was this favoured land in her days of youth? Free, noble, and intellectual. What did she become in those of her old age and decrepitude? Licentious and contemptible. This terrible change arose in a great degree from her children dwelling on what was beautiful to the eye, pleasing to the fancy, or captivating to the love of self, and forgetting to take as a groundwork the sterner realities of truth and goodness. Painting and sculpture, music, poetry, and rhetoric, they loved, and therefore excelled in; but, unsupported by those principles which guide and form the moral well-being of men, these very acquisitions led them into vice and speculative atheism. Their minds became corrupt and enfeebled, until the noble Greek of former days, reduced to the slave of successive masters, sunk lower and lower, is now despised by every civilized nation of Europe. Are all our educational systems perfectly free from the errors into which the Grecians fell? Do we never attempt to rear a goodly fabric without the key-stone, which can alone support it?

They who advocate general secular education, unaided by sound moral teaching, may, like the Greeks of old, produce perfect adepts in the various sciences and accomplishments which they profess to teach; but they will have failed in the real and æsthetical objects for which education was designed,—the well-being of man both here and hereafter.

Let it not be supposed, however, that we can trace errors and mistakes in the olden time alone. There is a principle still rife with ourselves, which appears to have pervaded equally both ancient and modern civilization,—the habit of laying down dogmatically certain axioms, any departure from which brings on the unhappy delinquent a perfect storm of sarcasm, abuse, persecution, and ridicule. He may weather the storm, for if what he propounds is true, the truth will make itself heard at last; but it is a terrible ordeal to go through, because it too often evokes the angry and darker passions of our nature, and leaves as its legacy behind the seeds of bitterness and ill-will. All this might be avoided if the disputants would not take up as their maxim, "I have said it, and therefore I will stand to it,"—forgetting how manifold are the old errors which further light has exploded; and which fact alone should teach us diffidence in the assertion of modern opinions. We should think less of victory, and more of testing, as well as maintaining, the truth.

Nearly allied to this error is the habit of teaching formularies the reasonableness of which we have never examined. For example, the ancient philosophers observed that the moment a solid or liquid body was removed, the surrounding air immediately rushed in and filled up the space it had deserted; hence they adopted the physical dogma that *nature abhors a vacuum;* and with this singular non-explanation, if we may be allowed the term, the world was content for two thousand years. By the same axiom the rising of water in a pump was explained in an equally satisfactory manner! Some Florentine engineers, however, being employed to raise water from an unusually great depth, discovered that it would ascend no higher than about thirty-two feet above the well. Galileo, the most celebrated philosopher of that day, was consulted in this difficulty, and, it is said, his answer was, that "Nature's abhorrence of a vacuum extended only to the height of thirty-two feet, but that beyond this her disinclination did not extend!" Some writers suppose this answer to have been ironical, but it has been more generally taken as a solution seriously intended. In either case it is an exemplification of the folly of attempting to teach that which we do not thoroughly understand, or of hiding our ignorance under the parade of technical formularies.

We will close this paper by pointing to one other mistake into which we, as well as our predecessors, are too apt to fall; namely, that of not attending first and principally to those branches of education which are most likely to be really and permanently useful to us. The folly of so doing has been somewhat remarkably exemplified in the educational system of the Jews of Central Europe, as practised thirty years ago.

Education commenced at a very early age with a Jewish child, but the nature of his studies was of a very limited character. The language and literature of the country in which they dwelt was utterly neglected. The Bible, with some commentary in the Hebrew tongue, and subsequently the Talmud, with its subtle interpretations, being the

only branches of knowledge supposed worthy of the student's attention. In the opinion of the strict Jew, everything that was desirable to be known was contained in the Talmud, and therefore the attention bestowed upon any other acquirement was a pure loss of time, while in its study and exposition they spent the best years of their life, leaving the language of the country to be picked up afterwards anyhow and anywhere.

This habitual study of the Talmud exercised a peculiar influence in the formation of their minds. The ingenuity which its exposition requires; the spirit of subtlety and hairsplitting with which it treats its subjects, the abrupt and enigmatical style in which it is written, and the rhapsodical character which it presents, greatly sharpened the intellect of the student, gave him an uncommon zest for argument and debate, and an extraordinary versatility of mind; but at the same time rendered him averse to discipline, and impatient of detail.

Those of the students who eventually became great proficients in Talmudical lore, and bore a good character, received in due time from their masters the *hatarah*, or diploma, which made them eligible for the office of rabbi. The mass of the students in their academies, however, were forced to be satisfied with subordinate offices, or turned later in life to temporal pursuits; and the figure which they then cut was often singular. Unacquainted with the practical world, for intercourse with which they had not been trained, they were frequently unfit for any other occupation than that of studying the Talmud. It was, therefore, upon their wives that the obligation devolved of providing for the family, and of discharging the duties generally performed by men; and ludicrous incidents arising from this strange position are related. Thus, one of these students, being summoned before a magistrate in order to sign a certain document, his wife appeared in his place; and when asked why her husband did not attend, the reply was, "My husband is a scholar who can neither read nor write;"—that is, the language of the country. A little general information would surely, in such a case, have been of more practical utility than an exclusive knowledge of Talmudic Hebrew lore.

And now let us add, in conclusion, that it is of little avail for us to study, even at far greater length, the errors of those who have gone before us, if we do not do so in a teachable spirit,—willing to receive the lesson those errors would give to us; namely, that their failures should act as beacons to guard us from a similar fate; and that they should warn us, as the light-house does the weary mariner, that dangers and difficulties are at hand, and that, if we would escape safely, we must not slumber on our post.

Notes of New Books.

Greek Syntax, with a Rationale of the Construction. By James Clyde, M.A., &c. Prefatory Notice by John S. Blackie, Professor of Greek in the University of Edinburgh. Pp. 221. Sutherland and Knox.

The object of this very clever book is to examine and expound the *principles* of Greek syntax. The author justly says that "as *cram* is to culture, so are rules to principles; and it is only when the rationale of phenomena, whether in language or in nature, is inquired into, that the study of either becomes an instrument of culture; for culture, in so far as it affects the relation of the mind to objects of thought, may be said to consist in the continual elimination of the accidental from the necessary, and to result in the reconciliation of all things by the discovery of a few first principles. Besides, the manifold character of Greek constructions, arising from the preservation of ancient synthesis by an extensive inflection of the declinable parts of speech on the one hand, and from the admission of modern analysis on the other, by an extensive use of the article and of prepositions, renders an investigation of principles peculiarly necessary and peculiarly instructive in Greek."

In fact, this book, unlike most other grammars than Mr. Wright's, steps from rules to reasons. It enters into the philosophy of language. As a school-book, it will therefore be, in the present generation, all but useless, because school-teachers, as a system, do not teach principles. But it is a delightful intellectual exercise, and we heartily commend it to the perusal of the Bishop of St. David's, and to every scholar and philologist downwards. Let it not be thought that we underrate the great grammatical canonists. The other day we praised Madvig, the Copenhagen professor, and we have great respect for the German grammarians, from Hermann to Kühner; but to our judgment no one has probed the genius of the Greek language like the author of this new Syntax. None, like him, have disclosed the numerous distinct ideas expressed or implied by the distinctions of case, voice, mood, tense, and also the subtle analogies which connect Greek with all the living tongues of Europe.

The canonized system of classical education tends to make men write fair imitations—*cum longo intervallo*—of Homeric or Platonic Greek: Mr. Clyde designs to open a new chapter, and to teach us how to study Greek with a view to learning the philosophy and use of language. The study of language thus becomes, as Dean Trench* has so well shown, part of the study of human history. Mr. Clyde makes etymology useful to the accuracy of thought as well as expression. He makes grammar—and especially Greek grammar, which contains so many of

---

* We rejoice in the promotion of this truly great English scholar to a post of eminence in London, where his active literary powers will, unimpeded by the labours of office, give scope to his educational energies.

the roots of our words—a part of logic, and essential to science. For is it not clear, that without precision in terms, and specific words for distinct things, however minute the distinctions, it is vain to hope to teach science plainly and accurately?

Mr. Clyde treats Greek less as a dead language to be crammed or learned, than as a living tongue to be spoken; and he aptly uses Neo-Hellenic, or the spoken language of Modern Greece, as an auxiliary in his work. But it is full time to let Mr. Clyde say his say in his own expressive style:—

"In one respect," he says, "I have derived exceedingly little assistance from any quarter, viz., in the illustration of Greek idioms by modern instances. These, however, lie on the surface, patent to every observer; and they have been admitted into the present work—to what extent may be judged from the enumeration under the word 'Parallels' in Index I., because in actual teaching I have found them to be not less useful than interesting to the learner. The saying, 'That is Greek to me,' used of what is hopelessly unintelligible, often exercises so depressing an influence on the mind of the English student, that he does not even *try* to enter into the spirit of the Greek idiom when different from his own; at best he tries to remember its dead form. Now this abject renunciation of the highest endeavour is fatal to success; but I have always found it yield to the charm of a modern parallel. If such can be found in our own language, so much the better; if not, then the less removed from our own by time and place, the more effectual; for place, as well as time, is an element of strangeness, and a contemporary illustration from Paris begets more courage, and lets in more light than a contemporary illustration from Athens. Even when the learner is ignorant of the language referred to, the mere enunciation of the fact, that living men in a neighbouring country use an idiom coincident with the Greek, reconciles the mind to its strangeness, and removes the prejudice which, by stopping sympathy, prevents understanding. Another important object will be gained if, by these parallels, it appear that the study of the modern languages, instead of being, as many presume, antagonistic, is auxiliary to that of the ancient."

* * * * *

"An uneducated foreigner, who by residence in England has acquired the faculty of expressing himself intelligibly in English, is nearer the heart of the English *language*, however distant from the *penetralia* of its literature, than the foreign scholar, who by reading has mastered the literature of England, but to whom, nevertheless, the expression of a single thought in English, except in the way of quotation, would be a laborious process, instead of a spontaneous act. This, however, is precisely the sort of phenomenon presented by our students of Greek; for although, on leaving the University, they are acquainted with the grammar and with certain authors,—those, namely, which they have been required to *get up;* and although, as is often the case, they may be able to pass an examination on those with more *éclat* than even the contemporaries of the Greek authors themselves could have done, who spoke the language of the originals, but had not made of them a special study, yet, from having written Greek little, and never spoken it at all, they have *no power over the language itself.*"

Similarly Arnold wished English was a dead language that he might analyze Shakespear as he did Thucydides. The mistake here was in being at all deterred from doing so, because Shakespear is in a living language. It was nowise necessary that it should be dead for the purposes of analogical lessons. Mr. Clyde has shown that the colloquial method of learning a language is of use, but we confess we think that he somewhat overstates the advantage. We attach infinitely more importance to the accurate and scholarly use he makes of analysis. First, he divides Syntax, not into concord and governments, as if they were discrepant things, but makes government *a form of concord*:—

"Thus, in ἀπέχομαι οἴνου—'I abstain from wine;' ἀπέχομαι is said to govern

οἴνου in the genitive: in reality, however, ἀπέχομαι is attended by the genitive, because of the *congruity* subsisting between the force of the genitive case-ending (which denotes the relation *from*) and the meaning of ἀπέχομαι (I keep myself *from*). Sometimes the underlying congruity cannot be so distinctly traced as in the above instance, but it must ever be presumed to exist; and not till it has been traced is the principle of a construction discovered. The syntax of a language being thus dependent on the inherent powers of words and of their grammatical forms, it is proposed to review these before investigating the laws of syntax themselves, which will be treated of separately, as they relate to words, and as they relate to sentences. The whole work, therefore, is divided into three parts, viz.: Part I. The Materials of Syntax. Part II. The Syntax of Words. Part III. The Syntax of Sentences."

He thus deals with analysis, and traces the forms of cases to ideas of place:—

"The case-endings denote *relations* of the entity expressed by the substantive. Neither the vocative nor the nominative denotes any relation, and they are therefore not properly cases. The relations of place, as being the simplest and most obvious, were probably the first observed; and to the principal of these the three Greek cases, in most of their applications, correspond; the genitive denoting '*from* what place,' the accusative '*to* what place,' and the dative '*at* what place.' Accordingly, these cases are capable of expressing the relations of place without the aid of prepositions. Thus, the genitive and accusative may accompany any verb of motion, to indicate, the former *whence*, and the latter *whither*, the motion proceeds; and the dative may accompany any verb whatever to indicate where the operation goes on. That such is the primary force of the Greek case-endings clearly appears from the meaning of the prepositions which are construed with each case exclusively. Thus, ἐκ and ἀπό bring out the *from* relation of the genitive, εἰς the *to* relation of the accusative, and ἐν the *at* relation of the dative; and it is important to remark that in prose, where greater precision is required than in poetry, the local *whence* is generally accompanied by a preposition, the local *whither* always, and the local *where* almost always. The finest illustration of the primary local force of the Greek cases is furnished by the triple construction of παρά, the radical meaning of which is *beside*: thus παρὰ τοῦ βασιλέως—'from beside the king;' παρὰ τὸν βασιλέα—'to beside the king;' παρὰ τῷ βασιλεῖ—'at beside the king.'"

He illustrates peculiar idioms and the peculiar use we make sometimes of prepositions in our own language very happily:—

"We say 'independent of,' but 'dependent *on*,' an irregularity which cannot be admitted into French so long as the simple verb *pendre*, 'to hang,' exists to preserve the etymological meaning of *dépendre*. The irregularity in English is an example of the law by which the loss of etymology, giving scope for the operation of new analogies, leads to changes of construction. The analogy of the sense often prevails, even where the etymology has not been lost, but only enfeebled. Thus, ἐπιχειρέω—'I put the hand to,' properly governs the dative; but the graphic outstretching of the hand to a thing which suggested the indirect regime, was at length forgotten, and replaced by the abstract idea of *undertake*, in which sense it is sometimes found with the accusative in later writers."

The admirable effect and facility of the author's analogical illustrations, from living languages, of Greek idioms, throwing light on both, will appear from this, among many other examples: speaking of the Greek dative of general reference (τῷ τοιούτῳ), for instance, he says:—

"The only English idiom which approaches the Greek, is the use of 'for you,' in the sense of 'you being judge,' or 'I warrant you,'—which the Germans express, like the Greeks, by the simple dative, as 'Das war *ihnen* ein Spass,'—'That was fun for you;' 'Da gab es *euch* ein Spektakel,'—'There was a row *for you*.'"

—Similarly he likens the Greek and German definite article, with its threefold sense, in each language. The Greek article converts the

infinitive into a noun, translated by the English gerund, as τὸ ἁμαρτάνειν, *sinning*, exactly as *il peccare*, Italian.

This Syntax will live.

Guide to Astronomical Science. By Robert James Mann, F.R.A.S. Pp. 460. London: Jerrold and Sons.

A book containing all the latest information, right or wrong, which has been put forth on this ill-used science during the last ten years. Broad axioms are printed in large type, numbered, followed by small type explanations and comments. When it is stated that Mr. Mann upholds the ridiculously incongruous and impossible theory of tides which the old books put forth, it will not be expected that he throws any new light on the topics which now divide men of science. The rotation question of the Moon's motion seems to have perplexed him. He tries hard to support the old theory, and is driven to this direct misstatement of a physical fact,—namely, that every point in a rotating body, and in the Moon, "revolves round all other points in it." None in the inner half, on the contrary, *ever revolves round any in the outer.* The blunders in this book are far too great to make it safe as a book for learners.

The absurdity of supposing that, because a cable tied to the Sun and Moon would wind itself round the Moon, therefore the Moon must rotate round her own axis, is a proof how little logic is brought to bear on this subject. No one denies that the Moon turns completely round in thirty days. There are three distinct motions by which a body revolving round another may do this; and in *each* of them the simple act of orbital revolution alone will wind a string round it, tied either outside or inside its orbit, as the case may be. This, therefore, determines nothing. Mr. Mann contradicts himself about the sidereal day. He is happiest on optical subjects. The arrangement of the matter is also commendable.

Advanced Text-Book of Geology, Descriptive and Industrial. By David Page, F.G.S. Pp. 320. Edinburgh and London: Blackwood, 1856.

We have before had occasion to praise Mr. Page's admirable mode of handling his subject. He has clothed geology in most attractive colours, and has greatly facilitated its popular comprehension.

LITTLE BOOKS.

The Science of Arithmetic. By James Cornwell and Joshua Fitch, M.A. Second Edition. Pp. 372. (London: Simpkin and Marshall, 1856.) A new edition of a very able work. The science and principles of arithmetic are admirably elucidated. The rules are stated with force and precision, and the examples are well selected.—— *The English Bible.* Part II. Pp. 63. (London: Blackader, 1856.) This is the continuation of a work which has both its merits and demerits. Some of the mar-

ginal notes are very good, and it is nicely printed.——*Simple Catechism of the Animal, Vegetable, and Mineral Kingdoms.* By Charlotte O'Brien. Pp. 70. (London: Relfe, Brothers.) This is a nicely written and useful little book, in questions and answers, giving an account of the different classes and subdivisions of the animal, vegetable, and mineral kingdoms.——*Practical Arithmetic for Junior Classes.* By Henry G. C. Smith. Pp. 64. (London: Simpkin and Marshall. Edinburgh: Oliver and Boyd.) This book, throughout the whole, does not deserve the title of "Practical Arithmetic," for, to become practical to "junior classes," it should be written in such a style as to be easily understood by them; *e. g.* in page 7, the table of the comparative view of the systems of numeration is decidedly above the comprehension of most of the members of ordinary junior classes. The Roman notation is also very intricate. We consider that arithmetic cannot be made too simple at the first commencement.——*The Geographical Word Expositor.* By Edwin Adams, Master of All Saints School, Sudbury. (London: Longman and Co., 1856.) The etymology of places' names is correctly given in this clever little work as a means of enlarging our knowledge and aiding our recollection of them.

SERIALS RECEIVED.

Frazer's Magazine [an excellent Number]; *The Scottish Educational Journal; The Educational Record; The Scholastic Journal; The Choral Wreath* [very good]; *The Educator; Examination Papers,* 17 to 32.

Intelligence.

ROYAL POLYTECHNIC INSTITUTION.

Dr. Booth, F.R.S., Treasurer of the Society of Arts, presided at a meeting on Monday evening, October 7, at the Polytechnic, to inaugurate a series of evening classes in union with the Society of Arts. The attendance was numerous, there being from 1,500 to 2,000 persons present.

The Chairman said he had much pleasure in giving his humble co-operation to the good work they had in hand, and in tendering them the assistance of the Society of Arts. He was glad to see the cause of mental improvement taken up by the people, because the real work could only be done by the public themselves. There was no use in waiting to see what the State would do. The Government desired to promote national education, and would assist them if they could, but what hope was there of anything being done while public opinion remained so unsettled? Did they not all know that the average age at which boys were being removed from school was diminishing from year to year; that it had gradually fallen from fourteen down to nine, and even in some cases to eight years? While, in fact, the State was adding at one end, the public were cutting off at the other. He (Dr. Booth) believed that the law of supply and demand would hold in this case as well as any other. If parents found their sons could not get on in life without education, why, they would endeavour to procure education for them. If young men were made to feel that industry, diligence, and consequent attainments were passports to employment, they would soon see the class-rooms, not only of this institution, but of every similar one in the country, filled. But how did a young man now prepare himself to obtain employment? By pestering the members of the borough, if he lived in one, or by running after any railway director or municipal official he can get hold of—nor was he much to be blamed for this. So long as the qualifications of candidates were the last things to be considered in filling up appointments, they could not expect that qualifications would be much improved. It was a great mistake to imagine that red tape was only to be seen in government offices; they would find nepotism and partiality elsewhere just as well. In short, the matter came to this: if the great employers of labour desired the people of this country to be better instructed, they had only to insist on a higher standard of attainments than they did at present.

The Rev. Mr. BUTTERWORTH OWEN further explained the nature of the arrangements between the classes now to be formed with the examinations at the Society of Arts, by means of which a central academy of sciences will be established. The attempt deserved every success, and it was clear that no one at the head of it could hope to reap any money-advantage from it, for the charge for lessons was so low that the payments, even with success, would barely pay the expenses of the management, and therefore the greatest credit was due to Mr. Pepper for the liberal manner in which he had taken up the subject. He thought that authorities of all ranks ought to support such efforts in antagonism to idleness, inebriety, and ignorance. The reverend gentleman concluded by reading the following list of classes:—*Monday:* Arithmetic and Algebra, from 7 to half-past 8 o'clock p.m.; Dr. White, F.C.P., Member of the Council and Examiner in the Royal College of Preceptors; text-books, Colenso's Arithmetic and Algebra. Chemistry, from 20 minutes to 9 to half-past 9 o'clock p.m.; J. C. Buckmaster, Esq., of the Department of Science and Art, and J. H. Pepper, Esq., F.C.S., A. Inst. C.E., &c.; text-book, Wilson's Chemistry, by Chambers.—*Tuesday:* Geometry and Mensuration, from 7 to half-past 8 o'clock p.m.; Geo. J. Tear, Esq., C.M.D., of Training College, Winchester; text-books, Tate's Mensuration and Pott's Euclid. Geography, from 20 minutes to 9 to half-past 9 o'clock p.m.; George A. Chapman, Esq., C.M., of St. Mark's College, Chelsea; text-book, W. Hughes's Geography.—*Wednesday:* History and Literature, from 7 to 8 o'clock p.m.; the Rev. C. Boutell, M.A., Oxon. French, from a quarter-past 8 to half-past 9 o'clock p.m.; Mons. G. Roublot, Bachelier ès Lettres; text-books, Smith's French and English Pocket Dictionary, De Fiva's French Grammar, Montesquieu's Grandeur et Décadence des Romains, and Voltaire, La Henriade.—*Thursday:* Mechanics and Elements of Mechanism, from 7 to half-past 8 o'clock p.m.; John Bridge, Esq., M.A.; text-book, Lardner's Handbook of Mechanics. German, from 20 minutes to 9 to half-past 9 o'clock p.m.; M. Heidenheim, Esq., Ph.D.; text-book, Ahn's Exercise and Grammar.—*Friday:* Bookkeeping, from 7 to 8 o'clock p.m.; Alex. Macpherson, Esq., Public Accountant; text-book, Chambers's Elements of Bookkeeping.

Mr. BUCKMASTER moved a vote of thanks to Mr. Butterworth Owen.

Mr. PEPPER seconded the motion, which was carried by acclamation.

UNITED ASSOCIATION OF SCHOOLMASTERS.

THE usual Monthly Meeting of the United Association of Schoolmasters took place in St. Martin's Hall, Long Acre, on the 27th September, when Mr. Mimpriss delivered a Lecture on his System of Graduated Simultaneous Religious Instruction. Owing to the extreme wetness of the weather, there was only a small attendance. Mr. Mimpriss began with the Gospel History, and proceeded to point out the unsatisfactory manner in which it is usually taught in our Day and Sunday Schools, it being a rare thing to find a scholar able to answer the question, Which of the four Evangelists begins the History of our Lord? He considered it was important that children should be taught the Chronology and Geography of our Lord's Life and Ministry. It might be asked, he said, of what use was it to teach these things to children? He contended it was of use, as from the Chronology and the Geography of the events of our Lord's life most important doctrines might be drawn, proving that Christ was indeed the Son of God. Mr. Mimpriss entered at some length into the subject, and explained that in the system he advocated all the children of a school were learning the same lesson at the same time, graduated, however, according to the capacity of the child, there being five grades in the system. Teaching the alphabet was discarded; the lessons were from the New Testament. At the conclusion of the lesson the children were examined by the teacher or superintendent: this was found to produce beneficial results.

The Harmony of the Gospels was next dwelt upon; Mr. Mimpriss explained here that the highest or bible class should be taught on his system.

The thanks of the meeting were given to Mr. Mimpriss for his lecture. The vote of thanks was duly acknowledged by the lecturer, who then withdrew, having to return to Folkestone the same evening.

Mr. Thomas Turner, Master of the Red Cross-street British School, Bristol, and President of the "Bristol Public School Teachers' Association," has given notice that, at the next Annual Meeting of the United Association, he will move the following resolution :—

"That the second rule be rescinded, and the following rule be substituted in place thereof,—'That all who are professionally engaged in education shall be eligible to become members of this Association; but that the Acting Committee shall have power to refuse any applicant whose conduct they may deem to be inconsistent with the moral precepts of the Bible,—subject, however, to the approval of the members generally at the next Annual Meeting.'"

The following is the second rule as it stands at present:—

"That the Association embrace all teachers (public and private) who acknowledge the essential doctrines of Christianity, and the sufficiency of Holy Scripture as the rule of faith and practice, and who regard the Bible as the only sure basis of true education."

At a General Meeting held in St. Martin's Hall on the 25th October, Mr. E. C. Daintree, Vice-President, in the chair, a very instructive and interesting lecture on "Gymnastics as a Branch of Education" was given by Mr. G. Reinicke, teacher of gymnastics in London and Brighton. At the conclusion of the lecture, Mr. Reinicke exemplified the system of gymnastics (that of Ling and Rothstein) which he employs, by putting some of the gentlemen present through certain of the exercises.

In moving a vote of thanks to the lecturer, Mr. Robert Dunning expressed his opinion that the time had now arrived for the introduction of the systematic teaching of gymnastics into our schools, and said he would be glad to see teachers carry out the sort of exercises advocated by the lecturer, with a modification of them for girls.

In seconding the vote of thanks, Mr. J. P. Hall asked the lecturer whether the exercises could be taught to a large class of boys. Mr. Reinicke replied that, within reasonable limits, the larger the class was the more easily could it be managed, on account of the greater interest which the exercises excited; that 30 to 40 pupils formed a good manageable class.

The Corresponding Secretary, in supporting the resolution, suggested that the desideratum with teachers was the knowledge how to carry out the instruction, and he hoped that the Association would invite Mr. Reinicke to attend on some future occasion with a class of actual pupils, and exemplify more fully the kind of exercises which he recommended.

A desire to this effect was expressed by other members present.

The Chairman, in putting the resolution to the meeting, stated his general concurrence in the views brought forward by the lecturer, corroborating certain of them by his own personal experience. He thought that the time devoted to the exercises should be taken from the intervals now allowed for recreation, but without depriving the boys entirely of their play.

The vote was carried and duly acknowledged.

After the general meeting a Committee meeting was held, at which the arrangements for the approaching anniversary were put forward.

Hants Church Education Society.—We shall give a full report of the meeting of this Society in our next Number.

Society of Arts Examinations.—At a meeting of the Council of the Society of Arts, held on the 8th inst., at which Colonel Sykes, F.R.S., Chairman of the Council, presided, it was resolved, "That the society's examinations for the North of England be held at Huddersfield, during the week commencing the 1st of June, 1857; that a sum of 100 guineas be awarded by the society's examiners in general prizes at the ensuing examinations of the society in June next." Several trade schools and commercial schools having applied to be taken into union, in order that the pupils of said

schools may avail themselves of the society's examinations, it was resolved, "That trade schools, and such other schools as profess to teach the elements of manufacturing or commercial knowledge, be eligible for admission into union on the same terms as mechanics' institutions.

Notices.

REDUCED CHARGE FOR ADVERTISEMENTS.

Orders and Advertisements must be sent ONLY *to* MESSRS. GROOMBRIDGE, 5, *Paternoster Row; the latter, from strangers, must be accompanied by a remittance, according to the following scale:—If under* 40 *words,* 3*s.* 6*d.; for every additional ten words,* 6*d.; a whole page,* £2. 2*s.; a half-page, or one column,* £1. 5*s. Ten per cent. discount on all Advertisements inserted more than twice.*

The JOURNAL *will be sent, free of postage, for one year, on receipt of* 6*s.* 6*d. in advance.*

TO CORRESPONDENTS.

H.—We never heard it questioned that the capitation fee goes to the schoolmaster. We will get the Minute mentioned, and decipher it in our next. We shall be glad of the notes offered.

A PRACTICAL PLAN FOR FURTHERING EDUCATION.

TO THE RIGHT HONOURABLE LORD JOHN RUSSELL, M.P.

November, 1856.

MY DEAR LORD,—You were good enough to allow me to submit to your consideration, in April last, the substance of the following plan and suggestions, made in consequence of your able and comprehensive scheme for the extension of education, and you did me the favour to express your willingness that I should print it. The present season appears opportune for doing so.

Whilst no one more fully appreciates the excellent spirit and design of your speech in April last, as well as the general character of the measures you proposed, there are some matters in which I venture to think that, my long acquaintance with educational necessities, and also with the feelings of different classes, may enable me to suggest improvements.

I am aware that it is your object to facilitate the voluntary establishment of schools, and that the compulsory measures in resolutions 8 and 9 are to be regarded as a last resource. It is probably also your opinion, in unison with that which is certainly the desire of a large majority of friends to education, both among Churchmen and Dissenters, that even a voluntary local rate is inexpedient where the present system of grants can be made available. Such feeling is, I think, strongly based upon these convictions :—

1. *First.*—That the incidence of local rates falls upon a small portion only of the community ; the working and poorer classes, for whose benefit the rate is chiefly imposed, being entirely exempted ; together with all funded property, stock in trade, &c. &c., whilst grants from taxes are directly or indirectly paid by the whole people, by whom it is just and politic that a national benefit should be sustained.
2. That any local school-committee to be elected by the rate-payers, must of necessity organize either a Church school, a British school, or one still more distinctively denominational : and that the election of such committee, as well as their choice of the character of the school, will frequently excite bitter rivalry between different religious communities, wherever two or more exist in considerable force in the same place. It is feared that this will necessarily again evoke sectarian feuds, which the present system has at length almost extinguished ; and that the animosity thus caused, and the consequent detriment to the peaceful progress of education, may be aggravated by the compulsory assessment of a school-rate upon the various dissatisfied parties who will in many cases be the majority of the rate-payers.*

* I was recently in a borough town of which the population is under 9,000, and in which thirteen denominations exist, each having their distinct place of worship.

3. That even by the establishment of British schools, the religious teaching generally, if not always, takes its tone from the denomination which preponderates in the governing body; a fact which proves that earnest religious instruction in this country has necessarily a distinctive doctrinal character, and therefore that any system of national education which does not blend comprehensiveness of action with due regard to this religious characteristic, will fail in a primary condition of success, which is by no means equally requisite in Switzerland or elsewhere.
4. That in consequence of the general sense of these difficulties, as well as of the great reluctance to impose or pay for additional local burdens, the self-imposition of a school-rate will be too rare to supply the schools needed.
5. That for the same reasons the Quarter Sessions of the Peace will shrink from the difficulty and unpopularity of compelling a school-rate.
6. That the adoption of any local rates will, *pro tanto*, diminish the benefit of voluntary effort in aid of education.

It may well be that these difficulties are exaggerated, and that in course of time schools supported by rates would work harmoniously and usefully. Nevertheless, knowing as I do how large and earnest is the body of objectors, and how very desirable it is to enlist their sympathy and enhance their exertions, I respectfully crave your Lordship's favourable consideration of any practical suggestions which may secure their co-operation by facilitating the voluntary establishment of schools, in the first instance, without rates. If this can be done even for one year, it is obvious that places which should nevertheless remain in need of schools would fall more justly under the imposition of a school-rate, even if compulsory, than before such facilities were supplied. It could not then be said that coercive measures were prematurely preferred to a full development and the fair trial of a system already attended with promising results; and so framed as to foster the voluntary performance of a social duty, to the due discharge of which the heart should combine with the purse.

It is, I think, my Lord, also manifest that the present administration of grants is capable of being easily simplified, and so extended as to meet the wants of poor places which are now prevented from profiting by them. Your Lordship has suggested the codification of the diverse "Minutes of Council,"—an essential preliminary to their comprehension by the public. I would venture also to suggest that certain requirements which now embarrass applicants, perhaps without adequate purpose, be modified; and that *bonâ fide* efforts to establish schools and obtain grants be treated in a genial and liberal spirit. This being done, there remains the important work of apportioning the scale of grants to the necessities and resources of the places requiring them.

I would propose to engraft upon the present system a mode of effecting this pressing requisite, which I venture to think would be easy and equitable.

I submit that grants, whether for building or augmentation of salaries, instead of being, as at present, given according to the wealth of a district, should be proportioned to its poverty and populousness.

I would suggest, therefore, *that there be three scales of grants: that the poorest places (forming Scale I.) should receive three-fourths of their whole expenditure (whether in building or salaries); that the places of medium wealth (Scale II.) should receive one-half; and the richest (Scale III.), only one-quarter.*

There are three easily accessible data whereby the comparative poverty or wealth of any parish may be practically ascertained, and reduced at once to a tangible scale. These are, the POPULATION, the AMOUNT OF POOR-RATES PAID, and the RATEABLE VALUE OF PROPERTY. The larger the ratio of the two first to the third of these items, the greater, *cæteris paribus*, will be the poverty of the district, and *vice versâ*.

Without attempting to suggest an exact working plan I may be allowed to show how, for example, such a one might be formed.

In the first place, I would divide the proportion borne by the *population in each parish* to the amount of *poor-rates paid* into two classes, viz. :—

Class A. Where the rates expended yearly exceed the average ratio of rates to the number of inhabitants in the whole country.
— B. Where they are under it.

Again, I would similarly classify the proportion between *population* and the *rateable value* of property, thus :—

Class *a*. Those in which the *rateable value* of property, per inhabitant, is less than the average ratio of rateable value to population.
— *b*. Those in which it is above it.

It might then be resolved that all parishes should be classified in three Scale-classes, I. II. and III.; thus, when a parish fell within categories A and *a*, it would belong to Scale I.; if in those of B and *a*, or in A and *b*, then to Scale II.; and if in B and *b*, then to Scale III.

The following actual cases in 1852 will show tolerably how this plan would work :—

	POPULATION.	RATES EXPENDED.	VALUE.
		£.	£.
Huntingdon, St. John	1,280	240	4,243
Norton, Yorkshire	2,315	370	8,427
Darowen, Cardiganshire	1,119	300	2,311
Broseley, Salop	4,739	935	7,623
Islington, St. Mary	95,329	13,688	372,381
Hereford, St. Owen's	1,743	603	3,497
King's Somborne	1,242	646	6,037
Manchester	186,986	62,777	677,446
Camborne, Cornwall	12,887	1,482	13,887

Exceptional cases would sometimes occur and require to be specially treated, and would be matter of easy adjustment, forming, if necessary, special cases.

Such cases would arise chiefly from peculiarities of population, or from their condition in life, or from both combined, as affecting their need of school aid. It might happen that the resident population would be comparatively poor, where the amount of rateable property and small rate-payments indicated wealth; and that, nevertheless, the great number of working-class children would entitle the applicants to average aid. Such cases would, however, be exceptional; and the local knowledge of the inspector would supply the information of which the statistics themselves would often indicate the necessity; and the Board of Education would do well in publishing the scale upon which grants would be apportioned, to declare that special circumstances would be dealt with as special cases.

The mode of framing the scale would be simple. A general average might be taken of the ratio of rate-payments and rateable property to population for the last five years, separately for England and Wales, similar to the return obtained by Mr. Knight for 1852 only, from which the above extracts were taken.

This plan, my Lord, would blend and co-operate not only with the local inquiries you so judiciously propose to effect by means of sub-inspectors, but with the discretion and authority of the central Board, which those inquiries are designed to enlarge. It would leave intact the power of the Board to refuse grants where it found no necessity for fresh schools. It would nowise interfere with the conditions on which your Lordship proposes that schools should be established. It would also preserve to the inspectors their present power of apportioning the grants given to the work done by the teachers; a public benefit which it might be difficult to effect under a system of rate-payments, but which it would be disastrous to education to forego.

I would beg to remind your Lordship, that though rich districts would have less inducement, by this scale of grants, to establish schools, they generally need them less: and that if your Lordship is fortunate enough to make the education of juvenile labourers incumbent on their employers, most of the wealthier districts will be compelled to furnish schools: and the same stimulus would be more or less applied and felt in every part of the kingdom. I cannot but think this an additional reason why a school-rate is not required, until the effect of the other inducements has been fairly tried; especially as it is very possible to multiply schools far more rapidly than the means of training and supplying efficient and practical teachers.

Thus the object of my proposal is humbly to suggest an alternative in aid of voluntary action, preliminary to the operation of your Lordship's scheme of rates, and not in opposition to it. In a word, I desire to give the country the option of preventing the necessity of a school-rate; or, failing to do so, to justify and facilitate its imposition.

In conclusion, permit me, my Lord, to remark, that no scheme for subsidizing and extending education will be half as effectual as the improvement of education itself. Neither half-time nor alternate day-labour, will have any tendency to enhance the value of the instruction given. On the contrary, the liabilities of imperfect teaching will be

thereby increased. That which is most needed is the *adaptation of the article to the wants of the purchaser.* This will alone render the parent earnest for the education of his child, or induce him to make sacrifices to secure or prolong it. I have endeavoured to test the instruction given in schools for the poor, of nearly every class, above 3,500 times during the last dozen years, and though I am conscious of continuous improvement, I am convinced that a large majority of the children who figure in school statistics are obtaining an education either so imperfect, or so greatly unsuited to their future station and to the requirements of labour-life, that they may almost as well be wholly without it. So long as we teach the bulk of the scholars only a little routine reading and writing, garnished with fragments of catechetical theology, and the beginnings of a long course (fitted only for classical schools) of geography, grammar, and arithmetic,—there will be little practical gain to the servant or labourer thus crammed, and much mischief, instead of practical good, resulting from such schooling to the cause it discredits.

With these views, I regard schools which combine the training of mind and body, and devote some portion of the day to manual industry, as preferable to any other. Although the intrinsic industrial skill acquired may be insignificant, not only is an aptitude for labour gained, but it happens that in such schools the mental instruction is generally of a far more homely and practical kind. It deals less in abstractions, and has a more direct relation to daily life, its wants, interests, and duties.

If one-half of the same effort were made to give this practical turn to school instruction, which is now, I cannot but think, misapplied to the settlement of "the religious question" (which, if let alone, will settle itself), I venture to believe that we should promptly and peacefully achieve all those real benefits that sincerely devoted educationists desire, however little such a course might contribute to the topics of the platform.

A simple requirement, in addition to its present wise provisions, by the Committee of Council, as a condition of grants, that no child should be subjected to any doctrinal instruction to which the parent objected, would meet all organic difficulty on the score of religion. The rest is simply a question of *£. s. d.*, and to be treated accordingly. If we desire to extend education, and increase the demand for it, we must first enlarge the means of supplying it; and secondly, enhance its quality, by adapting it to the use of those who need it, and will value it accordingly.

I have the honour to be, my Lord, your faithful servant,

JELINGER SYMONS.

GENERAL PRINCIPLES OF A METHOD OF TEACHING SINGING IN ELEMENTARY SCHOOLS.

BY J. TILLEARD.

(*Continued from page* 451.)

IX. Musical Rhythm must be taught by means of Poetic Rhythm—*Continued.*

BY subdividing both the beats of the two-part measure, we compress the rhythmical relations of two measures into the absolute time of one. In this case, the first half of the unaccented beat becomes, relatively to the second half, an accented moment. Both Trochaic and Iambic rhythms may therefore be also expressed in duple time by these smaller rhythmical values. The following are examples (Figs. 1 & 2):—

FIG. 1.—TROCHAIC RHYTHM IN TWO-PART ORDER SUBDIVIDED.

Two Crotchets in a measure. From Hullah's School Songs.

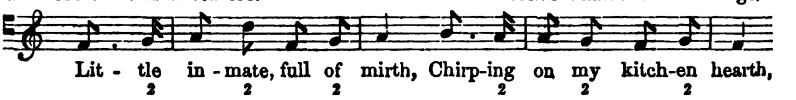
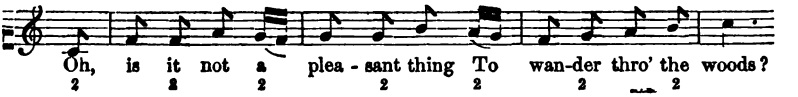


FIG. 2.—IAMBIC RHYTHM IN TWO-PART ORDER SUBDIVIDED.

Two Crotchets in a measure. From "Sixty Amusing Songs for Little Singers."



We have here adopted Edgar A. Poe's mode of accentuation, which is so much more simple and expressive than the ordinary mode. The Gregorian cleff marks the place of the key-note.

The four-crotchet measure divided into eight quavers is a combination of two of the above measures. We have thus Trochaic and Iambic rhythms expressed by quavers in common time also. Figs. 3 & 4 are examples.

FIG. 3.—TROCHAIC RHYTHM IN FOUR-PART ORDER SUBDIVIDED.

Four Crotchets in a measure. From The Young Singer's Book of Songs.

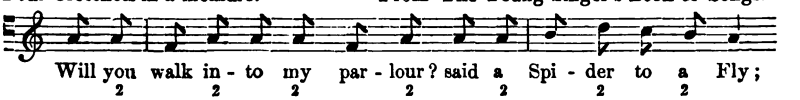
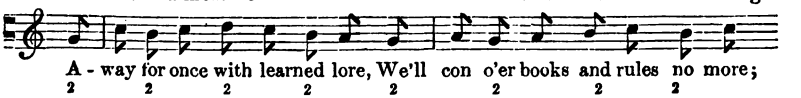


FIG. 4.—IAMBIC RHYTHM IN FOUR-PART ORDER SUBDIVIDED.

Four Crotchets in a measure. From Mainzer's Music Book for the Young.

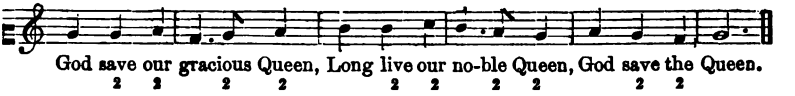


As the musical expression of the Trochaic and Iambic rhythms, which are sequences of feet of two syllables, is provided for by a corresponding arrangement of notes by twos, forming binary, or, as it is usually called, common time, so the musical expression of the Dactylic and Anapæstic rhythms, which are sequences of feet of three syllables, is provided for by an arrangement of notes by threes, forming triple time.

We have already shown, incidentally, that the measure of triple time in its simplest form exactly corresponds to a Dactylic foot (see ante, page 445), the first beat being accented, and the remaining two unaccented. For another example of this rhythm we may refer the reader to the National Anthem, "God save the Queen." A few measures must suffice here (Fig. 5) :—

FIG 5.—DACTYLIC RHYTHM IN THREE-PART ORDER.

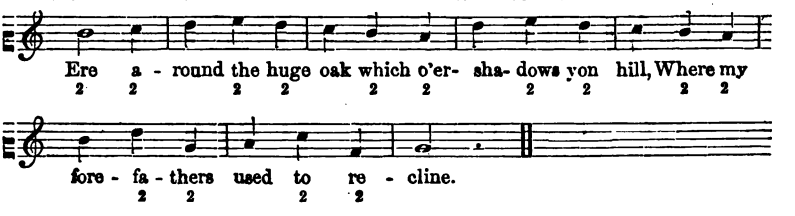
Three Crotchets in a measure.



The Anapæst is the reverse of the Dactyl, just as the Iambus is the reverse of the Trochee; and triple time is accordingly employed for Anapæstic rhythm, in the same manner as common time for Iambic, namely, by beginning the sequence on the unaccented beat of the measure. The following is an example (Fig. 6) :—

FIG. 6.—ANAPÆSTIC RHYTHM IN THREE-PART ORDER.

Three Crotchets in a measure. From The Second Class Tune Book.



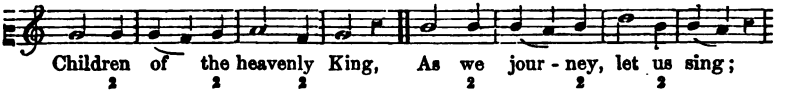
The rhythm of triple time is thus essentially Dactylic or Anapæstic; and, when the pulsations or beats of the measure exactly correspond, or nearly so, with the syllables of the verse, as in the above instances, this time is employed in its simplest form.

By the combination of the first and second beats of the measure upon one syllable, this kind of time becomes highly suited to the expression of Trochaic and Iambic rhythm. By this means the poetic rhythm is perfectly expressed, for both elements, the relative accentuation and the relative duration of the syllables, are faithfully reproduced in the music. A considerable number of tunes, both secular and sacred, will be found written throughout with this rhythmical structure, on account of its simple, natural, and expressive character.

The following passage is an illustration of Trochaic rhythm set in this measure (Fig. 7) :—

FIG. 7.—TROCHAIC RHYTHM IN THREE-PART ORDER.

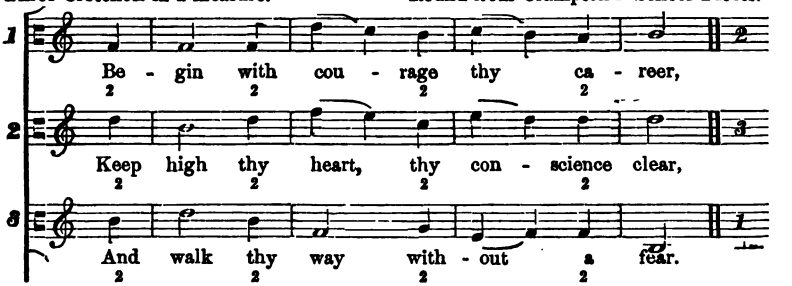
Three Crotchets in a measure. From Tilleard's Sacred Music for Schools.



In the annexed passage we have an example of Iambic rhythm in the same measure (Fig. 8) :—

FIG. 8.—IAMBIC RHYTHM IN THREE-PART ORDER.

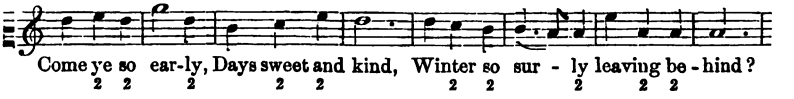
Three Crotchets in a measure. Round from Crampton's School Pieces.



Next in order of complexity would come composite verse set in triple time. The subjoined measures of one of Mendelssohn's open-air part-songs exhibit Dactylic and Trochaic rhythm in combination (Fig. 9) :—

FIG. 9.—DACTYLIC AND TROCHAIC RHYTHMS IN THREE-PART ORDER.

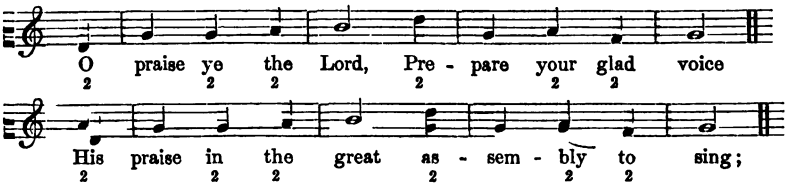
Three Crotchets in a measure. From Davidson's Handbook of Part-Music.



The 149th Psalm exhibits a combination of Anapæstic and Iambic rhythms (Fig. 10) :—

FIG 10.—ANAPÆSTIC AND IAMBIC RHYTHMS IN THREE-PART ORDER.

Three Crotchets in a measure. Hanover Tune.



This species of time is further adapted to the expression of Trochaic and Iambic rhythms by the occasional subdivision of a beat into two parts, and the application of a separate syllable to each part. When

such subdivision takes place, the first part of the beat, even if the beat itself is an unaccented one in relation to the whole measure, is an accented moment relatively to the second part. An example of each rhythm expressed in this way is subjoined (Figs. 11 and 12) :—

FIG. 11.—TROCHAIC RHYTHM IN THREE-PART ORDER SUBDIVIDED.

Three Crotchets in a measure. From Tilleard's Secular Music for Schools.

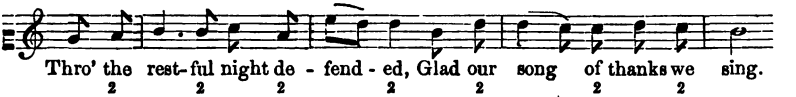
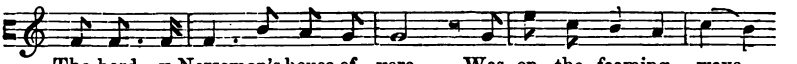


FIG. 12.—IAMBIC RHYTHM IN THREE-PART ORDER SUBDIVIDED.

Three Crotchets in a measure.



As the four-part measure is a compound of two two-part measures, so the six-part measure is a compound of two three-part measures. The rhythmical arrangements therefore of the so-called "compound common time" are essentially the same as those of triple time. The teacher should, in first explaining the construction of the six-part measure, adopt the same unit of time (the crotchet) that he has all along employed. He may afterwards substitute the quaver for the crotchet both in the three-part and the six-part measure, or, in other words, proceed from $\frac{3}{4}$ and $\frac{6}{4}$ to $\frac{3}{8}$ and $\frac{6}{8}$ time.

We will adduce instances of the most simple forms of this measure. The more complex forms will be rarely if ever met with in such short pieces of music as are suitable for the practice of the pupils before they learn modulation.

The passages in Figs. 13 and 14 exhibit the rhythm of the uncombined moments of the measure as (1) Dactylic, when we commence with an accented, or (2) Anapæstic, when we commence with an unaccented, moment. They correspond to the passages in three-part order represented in Figs. 5 and 6.

FIG. 13.—DACTYLIC RHYTHM IN SIX-PART ORDER.

Six Crotchets in a measure. From Martin's School and Family Book of Part-Music.

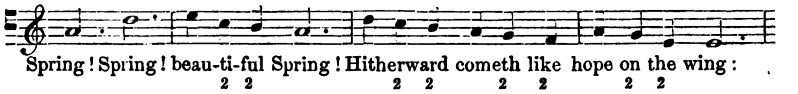
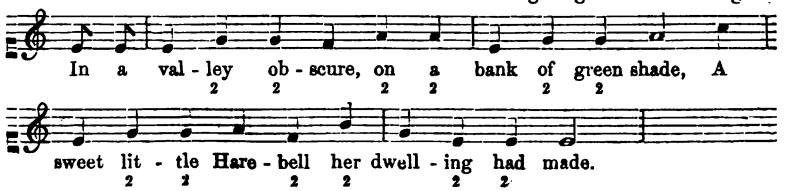


FIG 14.—ANAPÆSTIC RHYTHM IN SIX-PART ORDER.

Six Crotchets in a measure. From "The Young Singer's Book of Songs."



Figs. 15 and 16 exhibit the combination of the moments to form (1) Trochaic, or (2) Iambic rhythm. They correspond to Figs. 7 and 8.

FIG. 15.—TROCHAIC RHYTHM IN SIX-PART ORDER.

Six Crotchets in a measure. From the same.

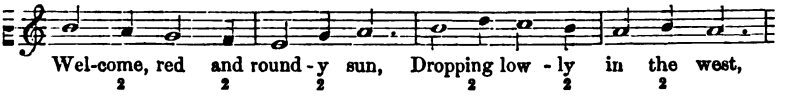
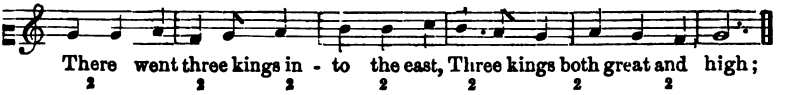


FIG. 16.—IAMBIC RHYTHM IN SIX-PART ORDER.

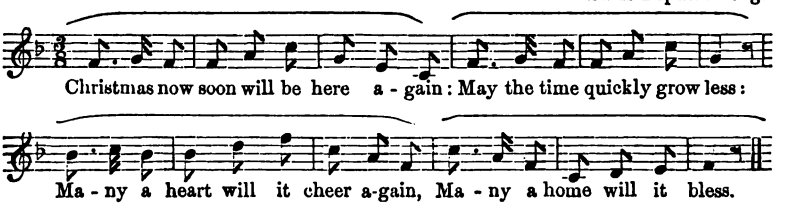
Six Crotchets in a measure. From the same.



Any piece in six-part order may, for the sake of illustration, be divided off into three-part order by inserting a bar in the middle of every measure. The only difference between the six-part and the three-part order is, that the former represents a specific grouping of the latter into larger rhythmical divisions—a grouping by twos. While, therefore, every passage in six-part measure may be resolved into three-part measure, it is not every passage in three-part measure that will admit of being converted into six-part measure; for example, the following passage, cited by Dr. Marx, in which the measures are grouped by threes (Fig. 17):—

FIG. 17.—TRIPLE MEASURES GROUPED BY THREES.

Swiss Popular Song.



Most tunes in three-part order, however, may be so converted, the measures being generally grouped by twos.

In order to give each six-part measure the character of a whole, it is the rule to subordinate the chief part of the second constituent division in performance to that of the first, by accenting the one more strongly than the other. The two accents of the compound measure are accordingly termed primary and secondary respectively.

The teacher will now have exhausted all the most simple orders of measures, and the most simple forms of measure in each order. The more complex forms of these measures occur only in extended compositions, which necessarily modulate into foreign keys, as no composition can be long sustained in the same key without becoming monotonous. The practice of the more complex forms must therefore be deferred until the pupils have acquired some skill in reading passages of modulation.

Such difficult combinations as twelve-part and nine-part measures altogether transcend the sphere of elementary instruction.

The simplicity of musical rhythm is in proportion to the shortness and clearness of its rudimentary forms, and to the smallness of the number by which these are grouped into larger rhythmical divisions.

We have hitherto been considering the rudimentary forms or smallest divisions, which generally constitute measures or portions of the same extent, and we have seen what must be the *general* classification of the exercises according to the length and structure of these ultimate unities.

But we must also make a *specific* classification of the exercises under each head, according to the second condition of simplicity in the rhythm, the number of small divisions (members) which are grouped together to form a larger division (section). The teacher should, under each description of measure, select for practice first exercises in which the members are grouped by twos, and afterwards gradually such as have wider sections, always making the pupils observe and understand the structure of the rhythm, without which the graduation of the exercises will be useless as regards the attainment of its main object, that of teaching the pupils rhythmical expression.

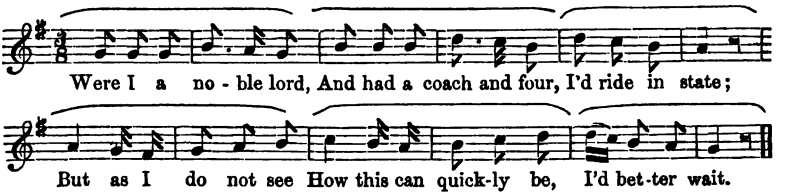
In making this sub-classification, the length of the lines of the poetry will generally be a guide.

We will, with the reader's permission, illustrate by an example or two the different lengths of sections in the same order. We will take three-part order, as one of our previous illustrations will then serve us.

In Fig. 18 the members (which are here exactly coincident with the measures) are combined two by two.

FIG. 18.—SECTIONS OF TWO MEASURES IN THREE-PART ORDER.

From "Sixty Amusing Songs."

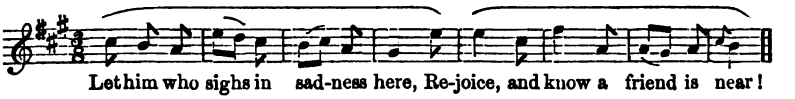


We have already given in Fig. 17 an example of a combination of three and three members in this time.

In Fig. 19 the members are combined four by four.

FIG. 19.—SECTIONS OF FOUR MEASURES IN THREE-PART ORDER.

"The Minute Gun at Sea."



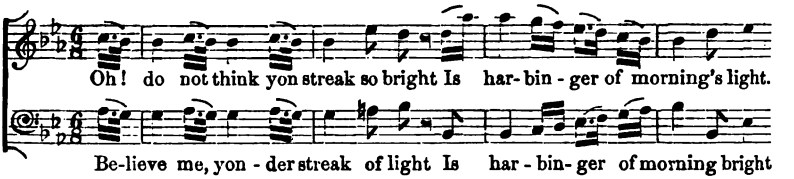
Wider combinations than this are not frequently met with in vocal music.

It may seem that this combination of members is the same thing as

the grouping of single measures into compound ones. But it is more than this, for the compound measures are themselves treated as unities, and combined in the same way. For example, in Fig. 20, we have a passage of compound common time, in which, it will be observed, the members are of equal length with the measures, and are combined two by two. If a passage does not present combinations on this larger scale, it cannot fairly be considered as belonging to compound time.

FIG. 20.—SECTIONS OF TWO MEASURES IN SIX-PART ORDER.

From FIDELIO.



We have dwelt at some length on the subject of rhythm, first, because rhythm is one of the two chief elements in the art; secondly, because the sense of rhythm is the lowest grade of musical inclination, and is accordingly the grade most commonly possessed and earliest evinced; thirdly, because, notwithstanding these things, rhythm is precisely the part of music which is most neglected in musical instruction.

1. On the importance of rhythm Dr. Marx makes the following observations in his "General Musical Instruction:"—

"It is rhythm chiefly which gives order, comprehensibility, and signification to musical compositions, and renders them capable of producing an unfailing and determined effect. It is rhythm which singles out and reduces to order an unintelligible mass of notes, which brings equal and unequal notes into parts of bars, and into whole bars, and thence into passages, phrases, and subjects; in fine, into appreciable and effective combination.

"Now, we know from daily experience that there are much larger compositions than movements,—compositions which consist of many passages, phrases, and subjects, combined together. What preserves order amongst them? In the first place again—rhythm. Then, or next in authority, or governing influence, the arrangements of modulation and the several chief subjects of the composition.

"For the study and performance of a composition, it is highly profitable to understand clearly its entire construction and arrangement."

2. On the general diffusion of a feeling for rhythm, a clever essay, reprinted from the "Quarterly Review" in Murray's Railway Reading, contains the following remarks, which may relieve the sense of weariness induced in the reader by the perusal of our dry and formal exposition:—

"The natural history of music is full of wonders. Wherever we look into its inherent elements, we are met by signs of precautionary care. It is as if the Giver of all good gifts had presided over the construction of this one with especial love, fencing it round with every possible natural security for its safe development, and planting it among those instincts

we have least power to pervert. The sense of *time* is alone a marvellous guarantee—a conscience which no other art possesses in the same measure—the order which is music's first law—the pulse which regulates the health of the whole impalpable body—the first condition of musical being—an invisible framework, in which the slippery particles of sound are knit together for action—a natural regularity which we can only bear to hear transgressed from the pleasurable suspense in which the mind is kept for its return; for the suspensions in the musical world, unlike those in the moral, have the blessed property of never bringing disappointment in their train. How deep the sense of time implanted in the human breast, when the mere motion of a little bit of stick, and that not governed by any piece of nicely-constructed mechanism, but by the sole will of one capricious dandy, can supply it in ample abundance to an orchestra of five hundred performers! But the true timist is time all over—his outward man is one general conductor—eye, ear, or touch, are alike susceptible to the electric fluid of true musical measure—you may communicate it to him by the palms of his hands, or the soles of his feet. One can hardly imagine a state of corporeal infirmity or mutilation which could render him insensible to this law. He may be blind or lame, he may be paralyzed from head to foot, or may have left half his limbs on the field of battle, it matters not—while he has sufficient body left to house his mind, the sense of time will not desert him.

* * * * * * * * *

"We should hardly say that an ear for melody is the highest criterion of a taste for music. It sets heads wagging, and feet tapping, sends the ploughman whistling forth, and takes many a stall at the Opera; but we suspect it is rather the love of harmony which is the real divining-rod of the latent treasures of deep musical feeling."

There is no doubt of the fact, and the explanation is obvious. In a melody we have to follow only one sequence of sounds; whereas in harmony we have to follow several sequences at the same time, and to discriminate, not only the successive relations of the sounds of each sequence, but also the simultaneous relations of the sounds of the different sequences.

But the natural taste for melody admits of very great development by cultivation, for in its uncultivated state it recognizes only the most simple relations. The difference between an uncultivated and a cultivated taste in this particular is well described and accounted for in the passage which follows, taken from Edgar Allan Poe's Essay on "the Rationale of Verse:"—

"The perception of pleasure in the equality of sounds is the principle of music. Unpractised ears can appreciate only simple equalities, such as are found in ballad airs. While comparing one simple sound with another, they are too much occupied to be capable of comparing the equality subsisting between these two simple sounds, taken conjointly, and two other similar simple sounds, taken conjointly. Practised ears, on the other hand, appreciate both equalities at the same instant; although it is absurd to suppose that both are *heard* at the same instant. One is heard and appreciated from itself; the other is heard by the memory; and the instant glides into and is confounded with the secondary appreciation. Highly cultivated musical taste, in this manner,

enjoys not only these double equalities, all appreciated at once, but takes pleasurable cognizance, through memory, of equalities, the members of which occur at intervals so great, that the uncultivated taste loses them altogether. That this latter can properly estimate or decide on the merits of what is called scientific music, is of course impossible."

In cultivating the taste for melody, therefore, we must begin with the smallest rhythmical combinations, and proceed step by step to such as are more and more extensive. This, the reader will remember, is the principle of classification which we have endeavoured to apply in sketching out a course of rhythmical exercises.

3. The singing of our music-classes and church-choirs is particularly defective in rhythmical expression. It too often continues in the even tenor (or treble) of its way, in one uniform tone, either emphasizing everything, or leaving everything unemphasized.

So general a defectiveness must be referrible to some radical error in the teaching of vocal music. We attribute it mainly to the excessive employment in recent times of *solfeggi*. We cannot for our life see how the practice of unrhythmical exercises can be a good preparation for the proper performance of rhythmical melodies. The solfeggi have their utility no doubt, or they would not be employed; but it certainly is not this. Strange to say, the Germans and Swiss manage to do without them altogether. Were they ever so rhythmical, still they sacrifice all the aid that may be obtained from the rhythm of poetry.

The tendency to sever music from poetry is an error into which the professional musician naturally falls, because music has *for him* a separate and independent existence. But the elementary schoolmaster should remember that he has to instruct children, and that music is for them, as it was for the infancy of the human race, only or at least mainly a means of expressing poetry.

We have accordingly recommended that the rhythm of poetry should be made the groundwork for teaching the rhythm of music in elementary schools.

This plan would have an indirect advantage, in relation to elementary schools for the laboring classes, which may perhaps commend it to some persons more than its direct advantages. It would cause an improvement in the pronunciation of the scholars, by requiring in the case of each tune practised a clear, distinct, and forcible expression of the rhythm of the poetry, both in reading and singing; and would thus tend, in conjunction with the reading lessons, to the assimilation of the now widely diverse pronunciation of different provinces of the country, —an object which "some persons" put forward as a reason for making vocal music a branch of national instruction, and which all must admit to be highly desirable.

In concluding this part of our subject, we would recommend to the attention of teachers the expositions of rhythm contained in the elementary treatises of Mr. Charles Child Spencer and Dr. Marx, as the best that we have met with.

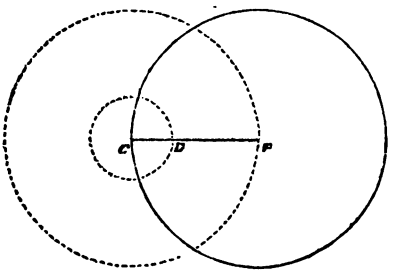
In our next article, we shall endeavour to indicate the general principles on which Modulation should be taught.

ROTARY MOTION OF WYLD'S GREAT GLOBE.

TO THE EDITOR OF THE ENGLISH JOURNAL OF EDUCATION.

SIR,—It may be an interesting novelty to not a few of your readers, that, on the hypothesis of the earth's diurnal motion necessarily causing Wyld's Great Globe to rotate on its axis parallel to the earth's axis, it must result, in describing a circle, that the fixed extremity of the given radius will at the same time describe the circumference of another circle, of which the centre is the revolving extremity.

Let $C\ P$ be the perpendicular from C, the centre of Wyld's Globe upon P a point in the earth's axis, and let $C\ D$ be the radius of the Globe coincident with $C\ P$.



By Dr. Lardner's Euclid (11th edition, p. 6), "If a right line of a given length revolve in the same plane round one of its extremities as a fixed point, the other extremity will describe the circumference of a circle, of which the centre is the fixed extremity."

Therefore since $C\ P$ revolves about the extremity P as a fixed point, the extremity C describes the circumference of a circle whose centre is P; but, by hypothesis, $C\ D$ revolves about C as a centre, therefore $C\ P$, being $C\ D$ produced, also revolves about C as a centre, and the point P describes the circumference of a circle of which the centre is C; that is, *the fixed extremity of the radius describes the circumference of a circle of which the centre is the revolving extremity.*

Corollary. Hence it appears that, on the same hypothesis, the earth's centre revolves about every point on the equator, and the earth's axis about every meridian !—I am, Sir, your obedient Servant,

H. M.'s Dockyard, Pembroke, S. A. GOOD.
11*th Oct.* 1856.

THE CANADIAN JOURNAL OF EDUCATION has an able article on the teaching of "Common Things," and we are glad to see in it a thorough appreciation of the efforts made by the Dean of Hereford to improve education, which have long since signalized him as one of our great champions in that noble cause.

Notes of New Books.

The Treasury of Geography. Designed and commenced by the late Samuel Maunder; continued and completed by William Hughes, F.R.G.S. Pp. 924. London: Longmans, 1856.

The introductory part of this work is written by the late Mr. Maunder, and forms a valuable addition to his other works. No pains have been spared in acquiring information, and we see in this work the "results of many years of study devoted to a favourite and well-considered subject."

The descriptions of both countries and counties are good, but in some instances are not full enough, *e. g.* the Isle of Man and the Scilly Isles, both of which well merit more full and particular descriptions. The towns and country are worthy of more notice, and also the characteristics of the inhabitants.

The engravings are remarkably pretty and well executed, and the maps plain and good.

The type is far too small, and, indeed, we cannot but think that to render all school-books, both more useful as well as agreeable to the reader, they should not be printed in type smaller than brevier.

Elements of Modern History. By Alexander Fraser Tytler Lord Woodhouselee. Fourth Edition. Pp. 275. Edinburgh: Black, 1856.

This is a new and improved edition of Tytler's valuable History. Section 75 on Literature and Science during the eighteenth and half of the nineteenth centuries is deeply interesting. There is a good chronological table at the end.

LITTLE BOOKS.

Geography of Productions and Manufactures. By John Flint. Pp. 36. (London: National Society Depository, 1856.) A most useful addition to all school-books, beginning with a table of definitions, followed by sections on mineral, vegetable, and animal substances, additional productions and manufactures, distribution of vegetable productions, and a section on trade winds. No school should be without this book. ——*Manual of School Gardening.* Pp. 53. (National Society's Depository, Westminster, 1856.) We know not who may be the author of this useful publication, but the preface alone proclaims him to be a practical-minded thoughtful man, and his observations therein are redolent of ability and great good sense.——*Manual of Health.* By John Flint. Pp. 35. (London: Simpkin and Marshall.) This is a most useful little book, full of valuable advice and suggestions; and we cannot but rejoice to see that Mr. Flint has a proper appreciation of the efforts made by the people themselves, for he most truly says: "Neither governments, nobles, learned men, physicians, nor clergy can help the people, unless they also strive to help them-

selves." We should like to see this a standard book in the homes of our English peasantry.——*Spelling Exercises.* By the Rev. H. Stretton, M.A. Pp. 96. (National Society's Depository, 1856.) We cannot speak favourably of these spelling exercises; there is nothing particularly novel in the arrangement, and part No. X. is certainly a failure: for instance, the author depicts the pronunciation of the words "déjeûner à la fourchette," as *de-zeu-na-ah-lah-fourshayt,* "valet de chambre," as *val-ay-der-shamber,* &c. &c. The table of abbreviations is useful.——*Explanation of the most Common Rules of Arithmetic.* By the Rev. A. Wilson. Part I. Pp. 24. (London: Sanctuary, Westminster, 1856.) This is a simple little book, as far as it goes, but we cannot see much to praise in it.

SERIALS RECEIVED.

Frazer's Magazine; Canadian Journal of Education; Penny Post.

Questions and Answers.

INDUSTRIAL SCHOOLS.—What do you recommend for boys in a town-school?—*Labor.*

Answer.—W. H. Hyett, Esq., of Painswick, has tried Printing with great success, and Joining. They have three founts of type and an old press, which turns out the work very respectably. We saw the boys at work last week, and found that they both compose, distribute, and do the press-work themselves, with very little superintendence from the schoolmaster.

BLACK BOARDS.—These get so easily greasy and unchalkable, that I shall be glad if you can tell me of a substitute.—*Q. R. Z.*

Answer.—Try Groombridge's. It is a sort of tarpauling stretched on a square deal frame, and takes the chalk-mark admirably and rubs out easily. It is also very light and portable.

COLLECTIVE TEACHING.—What is the best mode of eschewing this rock, on which so many teachers split?—*A Country Curate.*

Answer.—The best method of doing this is to make each child silently hold his hand out who thinks he can answer; then point to the youngest or least likely to be right, to answer you. If the others think the answer right, teach them to drop their hands; if not, to keep them up,—in which case take their answers successively till the question is well and fully answered. This has been found to be the quietest and most effectual way of testing a whole class, and of avoiding the delusion caused by a number of children echoing a correct answer, which is really given by one or two only of the most forward scholars.—*From Symons' Circular to Teachers.*

TEACHERS SHOULD BE MILD AND PATIENT.—We ought to guard against all tendencies to cruelty. In the ordinary intercourse with our pupils, let the hand never touch them save in kindness. Unenviable must be the feelings, or hard the heart of him, who notices his pupils shrinking from him, from fear of pain, at his approach. Above all, we ought never to strike the head of a child. Of all modes of torture invented, we know of none more fiendish than that of pulling hair or ears. Let us beware of giving way to this impulse of revenge. Where this spirit rules, all is flowerless—not a virtue can grow on its cold, barren soil. It begets a host of meaner passions in the breasts of those towards whom it is exercised. The child must believe the teacher incapable of it, or his confidence in him is shaken. Be patient, forbearing, firm, and kind.—*Canadian Journal of Education.*

Intelligence.

GLOUCESTERSHIRE CHURCH SCHOOLMASTERS' ASSOCIATION.

THIS Association held its third annual meeting at Cheltenham on the 14th ult. at the Training College there. It was attended by a large concourse of clergy and teachers. The Bishop of Gloucester presided; and among those present were the Dean of Hereford, Mrs. Dawes, Archdeacon Thorpe and Mrs. Thorpe, the Hon. and Rev. S. Best, the Rev. Messrs. Bromby, Blackmore, Wetherell, Forster, Powell, Hall, Clements, Emeris, Minigan, Davies, Griffiths, Whateley, &c. &c., T. B. Baker, J. C. Hayward, W. H. Hyett, and G. Bengough, Esqrs.; H. M.'s Inspectors, Bellairs and Symons, the Secretary of the Association Mr. Bee, and nearly every teacher, male and female, belonging to it.

The museum displayed admirable drawings by the pupils of the Training College, and a series of excellent maps, and also of plans illustrating Dr. Lardner's scientific apparatus by the boys of the Gloucester Blue-Coat School, which reflected great credit on their instructors.

Two model lessons were given by Mr. Moyse, of Trinity School, Cheltenham, and Mr. Easton, of the Workhouse School, a large class of whose scholars acquitted themselves admirably. These lessons exhibited in striking contrast the two modes of collective and individual teaching, questioning, and answering.

The Dean of Hereford then gave a very long and valuable lecture on several social evils and their remedies, together with some interesting educational comments. The lecture was so discursive, that each of its important topics was treated somewhat briefly, and will, we trust, be amplified in its reproduction in book-shape. The following sketch is a mere outline.

The Dean commenced by some general and introductory remarks on the sort of education required by the working classes. He had observed it was remarked lately, by a speaker at Bridgnorth, that he doubted whether any boy in the district union school at Quatt, though he could work problems in Euclid, or travel over the asses' bridge, was able to tell at what angle a furrow should be laid to catch the frost. This misrepresented the aim of our schools. It was expressly to enable boys to do these and like practical things that the instruction was designed. Boys should be led on from less to more: widening gradually the sphere of their learning, progressing from what they know to that which they learn next, by interesting them in the subjects of study, and enticing them to go on by degrees to higher attainments: just as in voyages of discovery, we are constantly adding, as we travel on, to our world of knowledge. To all such mental stores the acquisition of a competent knowledge of arithmetic and geography were necessary steps. The Dean then emphatically warned teachers against that imperfect teaching which *brought* discredit on education, and arose often from efforts to make a *display*, rather than by broad and solid foundations of knowledge. He

said, that if the common schools were properly divided into classes, according to the ages of the children, such as from 8 to 10, 10 to 12, 12 to 14, and that the real amount of their solid attainments were probed, it would be found that one-third only of each class could really answer well, so as to prove an intelligent comprehension of what each had been taught. He was satisfied that it was only by searching examination, and the results thus obtained in actual knowledge, that we could test the progress and amount of education among the people, and not by statistical estimates and enumerations. It often happens, that where much has been taught, little has been retained. The untowardness of children, and the indifference of their parents, are often the causes; but oftener still it resulted from imperfect teaching, and the too prevalent habit of being satisfied with indefinite answers by the children themselves, who should be made to understand distinctly, and then to express clearly, what they have learned. Religious instruction, the Dean held, could not be perfected without secular instruction. It was impossible to perform the great practical duties religion so strongly enjoins, without a competent knowledge of such secular sciences as may be requisite to enable us to perform them thoroughly and with due advantage to society. Thus the labourer is under a moral obligation to improve the value of his labour. It is by the study of useful secular knowledge that we learn to avoid selfish indulgence, and to fulfil the requirements of the great Christian duty of diligence and industry in whatever stations of life we fill. The lecturer illustrated this by various examples, and showed how humanity to the brute creation, and many other virtues, were instilled and aided by a study of nature and her laws. He dilated eloquently on the tendency of beautiful scenery, and the study of the natural sciences, to evoke feelings of veneration, and uplift our hearts in adoration of God. He instanced the popular explanations of the laws of electricity, and the simplifying of the great truths of astronomy, and their apprehension by the people, as admirable means of enhancing the moral sense.

Drawing also makes the hand delineate what the mind conceives, and thus aids its functions: while the head which is unable to master mechanical truth is often equally unable to understand moral truth. Thus geometry contributes to the education of the head almost as much as to that of the eye.

The Dean praised drawing-schools, instanced the success of that at Hereford, but held that they should always begin with a thorough course of elementary drawing. Mr. Hyett had rendered good service to the study of geometry by the cheap instruments he had introduced. The Dean next mentioned and recommended the use of the half-guinea microscope, made at Birmingham for the Society of Arts. This encourages a love of nature. If we wish rural walks to do children good, we must give them a taste for rural sights.

The Dean made many allusions to decimal arithmetic, and dilated on its manifold advantages, and on the marvellous economy that would result from its introduction into the accounts kept at the Customs and other public offices. He dwelt next on the merits of Savings' Banks and on private Banks for deposits. He denounced Benefit Societies: 8,000 out of 9,000 had been found to be held at public-houses; and shoals of them had become insolvent. Savings' Banks have received slight increase only of deposits during the last ten years, though there has been so large an in-

crease of prosperity and wages. He recommended the purchase of deferred annuities by school teachers. To secure an annuity of £20 per annum, to begin at 55, it would require a payment of only £3. 13*s.* 4*d.* per ann. from 25 to 55; and if death occurs before 55, the office returns the whole of the annual premiums received. Pensions were contemplated to school teachers, by the Committee of Council, but the lecturer advised them to take the matter into their own hands. He next advocated the purchase of school-books by scholars, and a system of graduated school fees according to the rank of the parent.* It was said that this was not fair, for that shop-goods were sold at the same price to rich and poor. It might be replied, however, that this equality of payments was not universal; for instance,—the Railway Companies conveyed passengers in first, second, and third class carriages, over the same distances, at equal speed, for very different prices.

In New England, education had been enforced as early as 1647, by the Pilgrim Fathers, by a compulsory Act, to make towns appoint teachers in grammar-schools, where there were but fifty families. The Dean espoused the project of similar legislative furtherance to education here, by means of graduated school fees, supplemented by local rates. He defended the Farmers from the accusation of being averse to education, by instancing the liberality with which they had rated themselves in aid of the school he had established at King's Somborne, by a twopenny rate for the annual cost, and a six-penny rate for additional building, this year.

The Dean delivered a glowing eulogium on the vast social moralizing benefit of education to a parish. Blunt had well said, that there was no better way of regenerating a bad parish than by means of a good school. Children love their parents in proportion to the sacrifices they make for their good; thus do schools supported by school fees cultivate the benign affections of filial love, far exceeding in the culture of the social virtues the gratitude called forth by the charities of the rich. The child is impressed with kindly emotions, not by the largesses of the Lady Bountifuls, but by the privations of his poor parents, who out of his scanty means spares enough to supply his children with education. Thus, as Blunt remarks, "does the school become the epitome of the parish."

The Reverend Lecturer approved of the prize system, and of alternate day labour for farm boys, and thought the farmers of Gloucestershire, stimulated by the Cirencester College, would perhaps be induced to try the latter. Efforts were making, encouraged by some of the chief employers of labour in Birmingham, who had petitioned for it, to extend the provisions of the factory Act to other labour. He disbelieved the cry that farmers would not stand the system. It was not in the spirit of the present day to persist in resisting the progress of knowledge among the people. The vast extension of machinery superseding the necessity of manual labour mightily facilitated the spread of knowledge and given time for mental improvement. The making of iron plates smooth, for certain mechanical purposes, used to cost 12*s.* per square inch: by improved machinery it now costs 1*d.* per inch. The population

* The practical difficulty is, how to draw the line fairly between each class.—Ed. E. J. E.

of the whole world could now not do by hand labour what the machine-power of Lancashire alone effects with perfect ease, and infinitely better.

The County of Gloucester had availed itself as much as any, of the grants in aid of education. The Counties of Hereford, Salop, and Worcester as little as any, and less than Gloucestershire, though their population exceeds it by more than 60,000. Their backwardness and low moral standard the Dean attributed greatly to the prevalence of cider-drinking, against which he inveighed in strong terms. It was known to diminish bodily strength in a singular degree; and he especially denounced that worst phase of the truck system, which consisted in paying part of the wages of labour in cider. The Dean advocated night-schools for adults, and lectures, as capital modes of giving instruction to the people; and said how usefully Clergymen might employ the leisure they could spare, after fulfilling their spiritual and parochial ministrations, to this legitimate and useful mode of diffusing the stores of their own information and intelligence. Judge Talfourd had admirably enforced in his last charge this duty of kindly sympathy between classes as the great want of England.

The Dean saw no reason to despond at the slowness of education. Like all the great advances in machinery and art, its progress must be slow and gradual. They had to-day had a pleasing proof of its extension to the poorest classes, afforded by the excellent specimen of the instruction given in the workhouse. They must each persevere in the good work. Those who strove to educate were the salt of the earth; as Franklin had said, that the character of a doer of good was of more importance than any other reputation. The book-hawking system was another useful auxiliary in the good work. An old quaint writer had said of books:—"Books are the masters which instruct us without rods, without anger, and without pay. If we mistake their meaning they do not murmur, and if we are ignorant they do not laugh at us." We must never, however, forget, in our anxiety to give the power to read, to ascertain what becomes of the power when it is acquired.

The Dean then enlarged on the duty of improving the cottage comforts of the poor, and some other physical means of facilitating mental improvement and social progress. Thanks were unanimously voted to him for his valuable lecture; and he assented, at the request of the meeting, to print his lecture. The association then adjourned at once to luncheon, at which the Bishop presided. Two subjects,—Annuities for Teachers, and Prize Systems, were proposed for discussion, which proved tame and uninteresting.

It is highly to be desired that, at future meetings of this and similar associations, the teachers should be encouraged to take a much larger, and the clergy a much smaller part in the proceedings. It should be remembered that the institution is for the benefit of the former class, who have few if any other opportunities of discussing what so closely interests themselves; whilst the clergy have manifold occasions of doing so. We trust there will for the future be summer as well as winter meetings, and that the next lecture at each association will be given by a school-teacher. We trust that the clergy and gentry who are members will forgive this hint. It will, if taken in the spirit in which it is offered, be assuredly the means of giving these useful associations a vitality and practical utility they will not otherwise attain.

HANTS AND WILTS ADULT EDUCATION SOCIETY, AND CONFERENCE OF INSTITUTIONS IN UNION.

On the motion of the Bishop of Winchester, seconded by the Bishop of Salisbury, the chair was taken by the Dean of Hereford.

The Chairman addressed the meeting. He gave some interesting details of a visit to Mr. Whitworth's factory in Manchester; he drew attention also to the "half-time system" in the factory districts of Lancashire, and suggested whether some similar provision might not be made for the children of agricultural districts. He stated that the objects of this meeting referred rather to adult than to elementary education, and pointed out forcibly the importance of making provision for carrying out the education that had been given in school. This Society had been established since he left the county, but he considered it a movement of a very important character. The class of subjects it was proposed to teach, and the ground the Society proposed to occupy, might be judged of by the diagrams, apparatus, and models before them. When formerly in Basingstoke every one was foretelling ruin from the railway, but he saw no sign of it. Why should they not anticipate the same result from steam in all its applications? The steam plough, the steam thrashing-machine, and other agricultural machines. The day was coming when skilled labour would be valued, nay, necessary; and it was wise in us to prepare for it, whether by the night-school, by half-time, or through the agency of the institutions in union with this Society they were assembled to consider; and he hoped these questions, with those which, according to the printed schedule in their hands, would be brought under consideration, would receive that attention from the members and the various institutions they represented, which they so richly deserved. The Chairman then called on the Secretary to read the Report.

Report of the Hants and Wilts Adult Education Society.

Presented October 7th, 1856, *at Basingstoke.*

In presenting their Report of proceedings for the year ending Sept. 1, 1556, the Committee venture to congratulate the Society on the success which has attended its labours. The great work of promoting, stimulating, and aiding Adult Education, is not one which can be accomplished without long-continued exertion and patient forbearance. There is much lost ground to make good, and prejudices, interests, and difference of views are to be overcome before we can agree upon any common platform of operations. When this is agreed upon, it will still be necessary to allow for very wide diversities of circumstances and conditions in the arrangements for carrying out our objects. Great as the improvement has been in our elementary schools in their method of teaching, and the more practical range of subjects, it may be questionable whether our greatest difficulty, the early removal of children from school, has not rather increased than diminished, and whether the very efforts we have made to improve school teaching, have not tended to abridge its duration. It is beside our office to enter into this branch of inquiry which belongs rather to the province of elementary than Adult Education; but as it is our duty to take up the youth as we receive him from the elementary schoolmaster, it is necessarily of vital importance to us and to our hopes of carrying on his education, that his teaching in the elementary school should be sound, enlightened, and liberal, that so he may be prepared to receive without risk or danger those impressions that the opening world cannot fail to make, and that the various calls and ramifications of labour, industry and skill necessitate. It has been a question, and is one to which the attention of this meeting is called, at what age, for the purposes and operations of the Society, Adult Education should be considered to commence. Fifteen is the age that has been hitherto taken, but judging from the correspondence of many members on the subject of evening schools, there would appear to be a difference of opinion, or at all events of practice on this subject, and as the starting point of our exertions is a matter of considerable importance, it would be well, perhaps, if it be wished that any higher or lower standard should be taken, that the wishes of the Society should be formally expressed.

During the past year several important institutions have been received into union, while the number of schools and small country reading-rooms has increased. Among the number of institutions are those of Fareham, Gillingham, Havant, Lymington, Newbury, Odiham, Poole, Ringwood, Shaftesbury, Titchfield, Warminster, Wilton, and West Cowes. Amongst the schools those of New Alresford, Beechwood, Chaw-

ton, Erchfont, Empshott, Farley, Longstock, Pitton, and Woodlands, and among the smaller reading-rooms, those of Brightstone, Calbourne, Chilbolton, Longparish, and Hayling Island. Your Committee would draw your attention to an alteration in the Rules made at the Salisbury Committee Meeting, held in January, by which the terms of admittance for schools are reduced to 5*s*., and the admission of any peculiar institutions, such as the book-hawking societies and drawing-schools is free, it having been considered that these institutions are not of a character to contribute anything to the funds of the Society.

For the purpose of establishing or enlarging libraries, there have been only three applications for grants of money during the past year. In book-purchases for institutions in union, there has been a considerable increase as compared with last year. In 1855, 170 vols. were ordered by the Secretary, at the desire of institutions in union, whereas for the present year, 320 vols. have been ordered through the agent to the Society of Arts, 100 of which are ordered by the Book-Hawking Society, but lately taken into union with us. The books so supplied to the various institutions in union, were at a reduction of 20 per cent. It may be interesting to many to know, that the greater number of these 320 vols. were from the General and Supplemental Catalogue of the Society for Promoting Christian Knowledge. In addition to the books actually ordered, the Secretary for book-purchases has received numerous applications from local secretaries for lists of useful and popular books; a desideratum which it is hoped the catalogue this day issued to members will supply.

At the last annual meeting at Southampton, it was resolved that this catalogue of books, formed, on the return made by the different institutions in union, of the 12 books or sets of books most in request among their members, should be printed for the use of the institutions. The value of this catalogue, first, as a guide to institutions purchasing, and secondly, as a guide to the tastes and studies of our members, it will be unnecessary to point out. For its imperfections your Committee would crave indulgence so far as they depend on them, and on the Secretary, by whose labours and classifications the details have been carried out. Had your Committee been favoured by more exact answers to their questions, the labour would have been much diminished, and the result much more satisfactory. They had hoped this year to have been able, through the returns of the institutions, to have published a still more accurate catalogue, but they regret to say that out of 76 institutes and schools, only 19 have favoured them with any answers to their questions. The number deficient (57) is so large as to preclude any possibility of such a catalogue being prepared.

The attention of the Committee being directed to the means of promoting Adult Education, various efforts have been made to which your Committee would anxiously crave your attention. In the autumn of 1855, at a meeting at Basingstoke, it was resolved to offer premiums to Evening Adult Schools, and the Paper (A) was issued, which, with the alterations now made in it, it is proposed to reissue for the present year. Under these proposals two schools only, namely, Empshott and Peterafield, have claimed and received the gratuity. At the same meeting the subject of itinerating libraries, discussed at Southampton, and referred back to the Committee, was taken into consideration. In these counties there are happily few parishes in which a lending library in some form or other, however modified and insufficient, does not already exist, or in which the cottage book-shelf has not become general through the active agency of the book-hawking societies. There did not then appear an opening for such a system of itinerating libraries, as had elsewhere been adopted with such good effect. The Committee thought that the same object might, to a great extent, be attained by the Union of Libraries, and the encouragement of the interchange of books. With this view the proposals (B) were issued. They were discussed by several institutions, and appeared to be very favourably entertained, but the absence of reports from the institutions, prevents our ascertaining whether in any or how many cases they have been acted upon. Your Committee would suggest, that very valuable service may be rendered to the cause, by the local secretaries assisting to group together the different libraries, and promoting their union. At a meeting held at Salisbury, in January last, the subject of prizes was taken into consideration, and it was resolved to offer premiums for the best examinations according to arrangements to be made by the secretaries. After considering the proposition at a subsequent meeting of the Committee at Basingstoke, it was resolved to carry it out by the issue of the scheme (C), which it is proposed, with only the necessary alterations, to repeat in the month of January, 1857, continuing the same subjects. This proposal arises out of the difficulty of bringing such questions before the public, and the want of information, notwithstanding all their efforts in circulating notices,

which prevails upon the subject. These papers, with the alteration of the dates only, it is proposed to re-issue for January next.

Under these proposals, examinations were held in the week of July 14th, at Lymington, Alton, and Abbott's Ann. The method of conducting the examination was as follows:—An application was made to the President of the institution to which the candidate belonged, requesting his assistance in the nomination of three members, one or other of whom would be present during the whole of the examination, and report that the answers of the candidates were given without any aid or assistance whatever. The whole was in writing. Two hours in the evening were fixed upon by the President, and allotted to each paper of questions which was sent by that day's post to the President, sealed, and with a special direction on the cover, that they were to be opened in the room. The answers also were to be sealed up in the room, and returned with a certificate from the Manager to the Secretary by the post. Several candidates in the first instance announced their intention of standing, but afterwards from doubt or distrust of the examination, withdrew. Finally three members only of the institutes of Lymington, Alton, and Abbott's Ann, were examined; the first in six subjects, including those proposed by the Society, as No. 4 (in C), with the addition of the two first volumes of Macaulay's History, Blunt on the Reformation, and the French language. The second in the three subjects (No. 4, C) proposed by the Society; and the third in the same subjects, with the addition of drawing. The examination in each case was satisfactory, and the Committee, desirous of marking their approbation of the courage and confidence with which these members met the proposals of the Society, and subjected themselves to an examination of which they could have no experience, have awarded to each a certificate and a prize, varying according to the value of the examination, and the number of subjects successfully handled. It has awarded therefore to Mr. G. F. Skinner, of Lymington, a prize of 30*s.*; to Mr. W. Blake, of Alton, a prize of 20*s.*; to Mr. W. Rowden, of Abbott's Ann, a prize of 10*s.*, accompanied in each instance by the Society's certificate. At the same meeting, it was resolved by the Committee to offer assistance in the shape of travelling expenses to any members of institutions in union, under the conditions (expressed in C), who would present themselves for examination at the Society of Arts, in June. Here again, several were in the first instance disposed to become candidates, but afterwards withdrew: one only, Mr. John Hams, of Romsey, presented himself, and, your Committee are happy to say, brought away with him one of the Society's certificates. By a subsequent resolution of the Committee, passed at the Winchester meeting, it was resolved to give a prize of books to any one earning the Society's certificate; and in consequence of this, Mr. Hams will also present himself before you this day, to receive his prize. Your Committee consider, that in this manner they have carried out the spirit of the recommendations of the Southampton meeting, on the subject of certificates, as preparatory to those of the Society of Arts, and would willingly, with your approbation, continue the same offers, and carry them still further by paying all the expenses of those who gain our prizes or certificates at the Society of Arts' examinations. While touching on this subject, it may be well to suggest to this meeting the propriety of addressing the Society of Arts on the subject of its examinations. They were held last year in London only, but the Society proposes this year to hold them also in the North. Should we not, therefore, vindicate for the South also, an equal claim to consideration? It would be a great saving of expense to those who can ill afford it, if the Society would hold a central examination for the South, in Salisbury, Southampton, or Winchester.

The last subject to which the Committee would draw the attention of the meeting, is the Declaration of employers of labour, by which they undertake to give value to the certificates, as well of the Hants and Wilts Society as of the Society of Arts. Copies of this lie upon the table, and a very great boon will be conferred on the cause of education by promoting the wide diffusion of that paper, now signed by a very large, enlightened, and influential body of men, and by getting those whose attention has not yet been fixed upon it, to join in this common and joint declaration of the value of a good education. A most influential declaration has been issued by the Society of Arts. The object of our declaration is to assist it by local ramifications; to enlist local classes and sympathies; and to make known to the conviction of our people, the value which so many of their neighbours, well known to them as men of sound judgment and integrity, thus set upon a good education.

Your Committee feel that in the Report now presented, many and very interesting questions have been necessarily passed over, but they trust to their being brought

under discussion in the Conference. They regret that the Reports do not allow them to congratulate you on the increase of classes in the Institutes. Drawing Classes, under the Department of Arts and Sciences, have been successfully carried out in North-west Hants, at Basingstoke, Andover, and Whitchurch. Discussion Classes, Music Classes, and Elementary Classes, have also been favourably mentioned in some of the Institutions; while in many there is a promise of greater attention to classes in the coming season. To one of the schemes of lectures as proposed by the Rev. F. V. Thornton, and accepted by the Basingstoke Institute, the Committee would ask your particular attention. Mr. Thornton proposes a "Course of Historical Lectures," *as a help to a regular course of reading for the winter,* and offers further to assist the members by meeting them in the Reading-room, an hour before the lecture.

It should perhaps be mentioned that in the autumn of 1855, the diagrams and models of the Society were lent to the Bucks and Berks Education Society, for use at a large Meeting in the Town-hall of Windsor, where a kindred Society for those two counties was successfully inaugurated. The Report of that Society, recently published, shows it to be progressing favourably under the same gracious patronage that has been extended to ours. Applications also have been made from other counties for the Rules and papers of the Society. The Committee desire to express their deep regret at the loss of the services of Mr. Bennett, their Wiltshire Treasurer, through severe indisposition. Mr. Hetley, of Salisbury, has been kind enough to accept the duties of the office. Annexed will be found the Financial Statement of the Treasurers, Messrs. Faithfull and Hetley.

Your Committee feel that a deep debt of gratitude is due to those gentlemen who during the past year have placed their gratuitous services as Lecturers at the disposal of the Society, and have thus furthered its objects. They are enabled to report that a still stronger body of Lecturers have this year offered their services, as the Lecture List will show. The advantages thus offered, as many of the Institutes testify, have rallied round us, in a common cause, many who might not otherwise have joined us. In thus coming within the sphere of our operations, let us hope that good will be the result, and that we shall learn to look upon any one means, however pleasant, as only a means to an end. This end must be pursued with judgment and industry by every means that we can bring to bear upon it: by Classes, by Evening Schools, by Examinations, by Certificates and Prizes,—that the great work we propose to ourselves may prosper, not merely in the education of the adult, or the enlightenment and raising up of the classes who have suffered so much by neglect, but by the promotion of intelligence and sound judgment among the many, through the extension of education on a sound basis, and thus add to the happiness and blessings of that land in which we dwell as a Christian people.

Messrs. E. W. Faithfull and R. Hetley, in account with the Hants and Wilts Adult Education Society.

Dr.	£.	s.	d.	*Cr.*	£.	s.	d.
To net Balance brought forward from last Year's Account	123	4	8	By Diagrams and Carriage of same	14	0	0
Donations since received	7	0	0	Grants to various Institutions	6	10	0
Subscriptions ditto	58	3	0	Advertising, Printing, Postage, and Stationery	37	1	11
Ditto unpaid	29	0	0	Salary to Curator	20	0	0
				Curator's Account for Carriage of Diagrams, &c.	6	14	9
				Expenses of last Annual Meeting	5	6	6
				Furniture	1	2	0
				Petty Expenses	0	9	3
				Balance including unpaid Subscriptions	126	3	3
	217	7	8		217	7	8

Appendix.

(A.)

The Committee of the Hants and Wilts Adult Education Society offer to all Institutions in Union a gratuity in Money or Books to the Teacher or Teachers who shall have conducted an Evening Class or School during the current Session, ending April 30, 1857, to the satisfaction of an Inspector appointed by the Committee, subject to the following conditions and limitations:—

1. That the gratuity paid by the Society be doubled from local sources independent of the payments made by the persons attending the classes.
2. That no pupil under the age of 15 years be counted, unless employed in industrial occupations.
3. That the amount of the gratuity, in no case exceeding £2, depend on the number of the class and the attendance.
4. That the aggregate hours of attendance of each person counted for the gratuity be not less than 80, to be certified to the satisfaction of the inspector.
5. That Reading, Writing, and Arithmetic, be deemed essential subjects of instruction; but that knowledge of Scripture, Geography, English History, and any branch of science be favourably considered and reported on by the inspectors.
6. The Committee reserves to itself the power of withholding the gratuity on the ground of insufficient merit, or marking its sense of higher efficiency by increasing it.

(*Signed*) SAMUEL BEST, WYNDHAM S. PORTAL, THOMAS BACON, E. E. P. KELSEY, } *Secretaries.*

N.B.—This paper in its present form is altered to carry out the resolution passed at the Conference.

(B.)

PROPOSALS.

Union of Libraries and Interchange of Books.

1. The libraries of a District shall be grouped together, as may be considered most convenient by the local Secretary, and with the consent of the libraries formed into an Union.
2. Boxes shall be provided for the transfer of books by each library.
3. Catalogues of each library shall be interchanged with the libraries of the Union.
4. Every member of any of the libraries shall be entitled to the use of any book in any of the other libraries (except such as are not allowed to be taken out of the room), on giving in the name of the book to the librarian of his own library on or before the 25th day of each month. No one shall be entitled to apply who has not returned any books he has before received.
5. Each librarian shall collect and return on or before the 27th of each month, the books received the preceding month, and forward a fresh list of those applied for. The carriage shall be paid by the librarian receiving the books.
6. No book shall be sent out that has not been six months in the library.
7. No library shall apply for more than one volume for every ten volumes of its own library. Volumes not returned shall be counted as against the library applying, and a forfeit of 1*d.* per week shall be paid by the person detaining a volume over two months, and remitted by his librarian to the library to which the book belongs.

(*Signed*) SAMUEL BEST, WYNDHAM S. PORTAL, THOMAS BACON, } *Secretaries.*

(C.)

PRIZES AND CERTIFICATES.—1857.

Prizes of Books to the value of £1, or 10*s.*, according to the character of the examination, and accompanied by a certificate of merit, shall be awarded to such members of Institutions in Union with this Society as shall pass a good and satisfactory examination either,—

First, in any three lectures that have been delivered in their Institutions during the last or present Session.

Or, secondly, in any subject which has been taught in a class of which the candidate has been a member.

Or, thirdly, in any three volumes on History, Science, or Geography, in the library of his Institution.

Or, fourthly, in the three following subjects:—1. The History and Theory of the Steam-engine. 2. The Physical and General Geography of the British Isles. 3. The Reigns of James II. and William III.

A certificate of merit will be given also to all who shall pass the examination creditably.

CONDITIONS.

1. That the candidate be above 15 years of age. That, during six months at least, he shall have attended a class or classes of instruction, if any such have been held in his Institution. That he send in a certificate of good conduct, and of his conformity with the aforesaid requirements, signed by the President and Secretary of his Institution.

2. That he give notice to the Secretary, in writing, or or before the 15th of December, stating the lectures, subjects, or books in which he desires to be examined.

3. The examination will be conducted in writing in the members' Institution under such regulations as the Secretaries of this Society shall appoint.

(D.)

RULES AND REGULATIONS.

1. This Society shall be called "The Hants and Wilts Adult Education Society."

2. The Objects of this Society* are to promote the establishment of Literary and Scientific Institutions, Libraries, and Reading-rooms; and to encourage a spirit of inquiry and improvement, by the delivery of Lectures on literary and scientific subjects, and by the formation of Classes.

3. The Management of the Society shall be vested in the Committee, of which the Secretaries and Treasurers shall be *ex officio* members. Three shall be a quorum.

4. The Operations of the Society shall include the counties of Hants and Wilts, with such other places as, by reason of contiguity, or for convenience' sake, are accepted by the Committee.

5. A General Meeting of the Society shall be held annually, in the month of August, for the election of officers and transaction of business.

6. The Society shall endeavour to promote Lectures in the larger Institutions, by a List of Lectures offered gratuitously to their choice, and in the rural and smaller Institutions, on the principle of mutual assistance. For either purpose communications and arrangements should be made with the Local Secretary.

7. The Travelling Expenses of the Lecturers shall be borne by the Institution claiming their services.

8. Members consist,—First, of Annual Subscribers of £1, or Donors of £10; and secondly, of Lecturers, whose services having been accepted by the Committee, have given, or undertaken to give, at least three Lectures gratuitously, in the current year, to Institutions in Union, and without any compensation by mutual assistance.

9. Members shall be entitled to admission to all Lectures, and to the free use of Diagrams, Models, Apparatus, &c. in any Institution in Union, or in their own houses. Subscribers of 10*s.* shall be entitled to admission to all Lectures.

10. Institutions in union with the Society of Arts, if within the terms of Rule 4, shall be entitled to free admission into union with this Society. Schools are admissible on payment of 5*s.* per annum, and other peculiar Institutions at the discretion of the Committee. Ordinary Institutions and Reading-rooms shall be taken into union on forwarding to the Secretary an application to that effect from any member of the Institution who is also a member of this Society.

11. In towns where more than one Institution is in union, the Lectures shall be open on the same terms to all members.

12. Every Institution joining the Society shall be at perfect liberty to carry out its own rules on its own conditions, subject only to those of the Society.

13. The Committee shall have the power of making Grants, and offering Gratuities or Prizes, in furtherance of the objects of the Society.

14. It being the object of the Society to promote and facilitate, but neither to

---

* *Note.*—In these Rules the word *Society* is used to denote the *Hants and Wilts Adult Education Society.* The term *Institution* is applied to other *Societies, Associations, Institutes, Schools, Reading-Rooms, &c.* in union with *this Society.*

arrange nor provide for the delivery of Lectures, no member shall be considered in any way responsible for the Lectures delivered in any Institution in union; nor shall the name of the Patron, President, Vice-presidents, or of any Officer of the Society, in any case be used, without his express consent, as the Patron of any Lectures, course of Lectures, or Institution in union.

The Bishop of WINCHESTER next addressed the meeting. He said: Mr. Dean, I have received your permission to move the adoption and circulation of this Report, which has been already printed for our convenience, and which we have all, I am sure, listened to with deep interest. For myself, I can safely say that I have never listened to a Report more practical in its character, or more likely to be useful for after consideration. But you will, nevertheless, permit me perhaps, in moving its circulation, to add a few words in reference to the general objects of this meeting. I have attended it with feelings of the greatest satisfaction to myself. I had a double motive, I may say, in attending here to-day,—one, I am not ashamed to confess, is in some degree a personal one,—not exactly personal to myself, but to you, sir, who now so worthily occupy that chair. I did feel that when you did us the favour of coming here from your now distant sphere of duty, where you are so usefully occupied, it became me, as one who had been connected with you for so many years whilst you resided in this diocese, to come forward and express my gratification at seeing you thus returning, if only for a day, to your former field of labour, to testify to us that, though removed to a distance from us in your person, you are still with us in spirit,—that you still feel an interest in that county which you have contributed so much to benefit, and in which you have set so bright an example to others in promoting the great cause of education. It must be to you, Mr. Dean, a subject of honest congratulation that you have lived,—as many who, like yourself, have laboured for the good of others,—to see that good which you have accomplished appreciated by your contemporaries. I remember when you first announced to me your intention with reference to the school at King's Somborne,—the first of its kind established, I believe, not only in this county, but in this country. I have always looked with deep interest to that school, and the object it was intended to serve. Ever since I have been connected with this diocese, it has been my object to promote the staple of education. I felt how great the need that that staple should be elevated, and I felt also how little had been done by the large machinery at work,—the many schools that were open,—the many ardent minds that were labouring in them. I felt how little had been done by all the agencies towards bringing the great mass of the rising population of the country within the sphere of what may legitimately be called instruction,—I mean education in its highest sense. To you, sir, we owe it, to have shown to us that education may be raised to its most desirable pitch, even within the limits of a strictly agricultural parish,—an agricultural parish containing in itself no peculiar advantages favourable to the object, but rather the contrary, from the absence of any leading educated minds beyond the ordinary class of agriculturists within the parish itself. Yet, sir, you have had the happiness of seeing that that school so established under your auspices has not been destined to fail, as some predicted it would do when you, its founder, were removed from it to labour elsewhere. They know that in your present position it has been one of your highest pleasures to receive from time to time satisfactory reports of that school, thus proving that that, and other institutions of a similar kind, do not depend on the individuals by whom they are founded, or upon those by whom they may be first managed and conducted, but that they are based upon principles which are imperishable, and capable of being carried into action when the hands that first set them in motion and guided them are removed, and perhaps cold in the dust. This you have experienced yourself, and this you have proved to others, and I thank you most heartily for attending here to-day to show that you still sympathize with the same object, and that you still feel a deep interest in the welfare of that same humble class to which you have been already so great a benefactor. Permit me to add that I had another motive in desiring to participate with you in the pleasures and advantages of this meeting. To you, sir, it is no secret that I have long felt a deep interest in the promotion of education of the highest class, and there are others here present who are also aware of that fact, but it is only on such occasions as these that the great masses of those who reside within the county with which I am connected can be made aware of what are my earnest desires on this interesting subject. I felt, therefore, that it would be no improper intrusion of myself to attend and express here, in the presence of one whom I know to be so warm a friend to the cause of education, that I am proud to be a *coadjutor* with him in the humblest way in the furtherance of that object to which

he has devoted so much care and so much time. It has been a matter of the highest gratification to me to know how cordially and well your efforts have been seconded by so large a body of the clergy of this diocese. The Secretary will bear his testimony to the fact that not amongst the least useful and least talented of the lecturers who have gone forth from the seventy-six institutions in connection with this society have been the clergy of this diocese. To many of them I have listened with great delight, and I hope with great advantage,—or, if not with advantage, the fault has been my own,—and I would take this opportunity of expressing my earnest belief that they cannot in any way employ their time more usefully—next to that always first and paramount duty of the clergyman, the spiritual care of his parish—than in giving the advantage of their information in that way to the classes connected with this society. (Cheers.) The sympathy thus shown by the clergy forms by itself, as it were, a key to the hearts of many—which hearts they could never reach by any more formal or didactic mode of operation; and there is this advantage in addition, that in this way we establish that neutral ground so much to be desired wherever the clergy and the laity, the more educated and the less educated, may meet together on the same platform. Politics may divide, but the Hants and Wilts Adult Education Society has nothing to do with politics. Religious differences may interpose to disturb that harmony which might else reign amongst those who are labouring in one common cause; but this society knows nothing of religious differences. (Hear, hear.) Here the clergy of different views upon questions of theology may meet and co-operate together without finding anything to interfere with the religious principles or prejudices and feelings of others. This I regard as a very great advantage. I am one of those who believe that by mutual intercourse and sympathetic benevolence more may be done in the way of ameliorating the condition of the masses of the people than by any other means; and whatever offers the opportunity for meetings and associations of this kind seems to me to be an object well worthy of the attention as well of the clergy as the laity. (Cheers.) I feel that it would be very unbecoming in me to occupy the time of this meeting with any general remarks, but I cannot avoid adding one or two words in reference to two points which have been touched upon in the Report. I wish to say in the first place how gladly I observe that competitive examination enters within the scope of the operations of the society. (Hear, hear.) I look upon these competitive examinations as likely to be productive of very great benefit. They bring men not only into contact with each other, but into trial with each other. They teach young men to know themselves, and to obtain that knowledge which they have not, but which others possess. Thus they become a useful stimulus to the mind to improve itself by comparison with other minds. (Hear.) I hope these competitive examinations will be continued, and that the members who compete at them for the prizes in future years will not be three but thirty. One other point—the half-time system—has been alluded to. I heard with great delight from the chairman the suggestion that it might be possible to introduce that system as it exists in the manufacturing districts, but with some modifications, into agricultural counties such as this. We must bear in mind, however, that there is a great difference between the circumstances of the agricultural counties and the manufacturing districts. Except in very urgent and exceptional cases, the productions of the factory may be postponed from one day to another. It is not of very much consequence, ordinarily speaking, that a given number of yards of cotton should be manufactured this day or the day following; but that is not the case with the products of the land. You cannot postpone your ploughing or your sowing from one time to another. You cannot take the ploughboy away from his plough in the middle of the day and leave the plough idle when ploughing can be done. (Hear, hear.) But you might adopt some other plan, and I think the suggestion of the Chairman would meet the difficulty. You might have alternate ploughboys, and allow the boy who ploughs to-day to go to school to-morrow, and thus have the boys at school and at work on alternate days. (Hear.) I must say that I am sanguine enough to hope that, amongst those who think the souls as well as the bodies of the people should be cared for, that some plan for carrying out the proposition will be devised, and that we shall shortly see something like an agricultural half-time system established in these agricultural counties. (Cheers.) I beg, in conclusion, to move that the Report be circulated, not only among the members of the society, but at large. (Hear.)

The prizes were then presented to Mr. G. F. Skinner, of Lymington; Mr. W. Blake, of Alton; and Mr. W. Rowden, of Abbott's Ann; each of whom had passed a rigorous examination, embracing the history and theory of the steam-engine, the physical geography of the British Isles, and English history during the reigns of James II. and William III. Mr. John Hams, of Romsey, also obtained a prize, and

was congratulated by the Chairman on being the first student from this agricultural district who has distinguished himself at the examinations of the Society of Arts.

After the presentation of the prizes,

Mr. E. CHADWICK said that at the last annual meeting of the delegates of the chief Educational Institutions of the two counties, held at Southampton, he drew attention to the deep interest of these and other educational institutions, and of educators and families of every degree, in the question of the proposed open competitive examinations as tests for admission to the public service, and he then availed himself of the presence of the mayor and some of the corporators of Southampton, one of the class of boroughs to the electors of which such appointments were usually given in the greatest number, to appeal to them whether it would not be better for the social interests of the town that the uniform of the postman should denote that the wearer had won it as a prize scholar from their diocesan or their free-school; whether it would not be better that the dockyard appointments were given upon open competitive examinations for success in the practical sciences which might be taught in mechanics' institutes, or the numerous appointments to the care of the woods and forests in the county upon open competition of those who had been especially successful in the sciences conducive to arboriculture, than that they should continue to be given as patronage, that is to say, as bribes for proficiency in the arts of jobbery in local politics? And these questions then met with a response, which, if they could be put in all the other boroughs, would be of great educational and social, as well as of political importance, in changing the destination and influence of the vacancies occurring in the bulk of 1,600 appointments to the public service.

The following subjects were then proposed for discussion, and engaged for some time the attention of the conference:—The Encouragement of Classes in Institutes; Examinations, Certificates, and Prizes; Arrangements for Lectures and Classes; The Union of Libraries by Interchange of Books; The Book Catalogue published by the Society.

Mr. COLE dilated on the advantages resulting from a knowledge of drawing, and explained in detail the terms and conditions on which the Government were prepared to grant gratuities to such educational institutions as would undertake to give instruction in that useful and elegant art. He characterized drawing as "an easier description of writing," and observed that it was practised with the greatest success in cathedral towns, where the constant contemplation of fine ecclesiastical architecture created a taste for it.

The Rev. C. KINGSLEY cordially concurred in these observations. In ten, fifteen, or twenty years hence, there would be for agricultural purposes a complicated steam machinery such as men had little notion of at present; when the skilled labourer was required to work that machinery, happy would it be for the agricultural labourer who knew something of the principles of scientific drawing.

A discussion followed on the best method of securing the right and interest of mechanics in the management of institutes. It was a matter of general complaint that these institutions had not realized the expectations that had been formed of them, and

The CHAIRMAN attributed it to the fact that in our schools primary education was neglected.

The Rev. F. TRENCH suggested that they should be made to partake more of the character of poor men's clubs, and that refreshments (not spirituous) should be served there.

A vote of thanks was proposed to the Chairman, and the proceedings terminated.

BRISTOL CHURCH OF ENGLAND SCHOOLMASTERS' AND SCHOOLMISTRESSES' ASSOCIATION.

THE members of this association held their annual meeting on Saturday, the 4th ult., at St. Mary Redcliffe's Boys' School. Mr. Ullathorne presided, and Mr. Woolcock gave a lesson for criticism, to a class of boys, on the Deluge. After tea, the lessons and essays were fixed for the ensuing year, the treasurer's accounts were audited, and the secretary's report of the last year's proceedings was read, from which the following is an extract:—

The working of this association is characterized, not by that fitful and changeable policy which makes it easy to present a varied report, but by that quiet, unassuming, uniform, but practically useful operation which leaves little to say, except that the *Bristol* Church of England Schoolmasters' and Schoolmistresses' Association is both

prosperous and efficient. The number of admissions during the period to which this report refers is 12; the number of withdrawals, occasioned chiefly by removals to other localities, 7; and the present number of members, 24. During the year the mode of circulating the periodicals has been revised, the city and vicinity being now divided into three districts, viz.: the Clifton, Central, and Eastern; and, from the absence of complaint, it is hoped that each member is satisfied with the arrangement, and that the periodicals answer their purpose of giving information and instruction on educational matters.

The meetings held in the last twelve months number 12, at which as many lessons, subject to criticism, have been given; and 10 essays, including Mr. Clarke's lecture on "Writing," have been read, viz.:—

In October, 1855, at St. James's, lesson by Mr. Serjent, on "Vapour."

In November, at Bread Street School, St. Philip's, lesson by Mrs. Davis, on "Italy." Essay by Miss Bodey, on "The Characteristics of Children."

In December, at Clifton Girls' School, lesson by Mrs. Bryant, on "The Raising of Lazarus." Lecture on "Writing," by Mr. Clarke.

In January, 1856, at Clifton Branch School, lesson by Mrs. Clay, on "Naaman the Syrian." Essay by Mr. Vernon, on "How and What to Criticize."

In February, at St. Michael's Boys' School, lesson by Mr. Wilson, on "The Steam-engine." Essay by Miss Darwent, on "The Cultivation of the Moral Faculties."

In March, at Fishponds (Dr. Bell's), lesson by Mr. Baker, on "Coal." Essay by Mr. Dainteth, on "The Study of Music."

In April, at St. Peter's Girls' School, lesson by Miss Westerman, on "The Raising of the Widow's Son." Essay by Mr. Ullathorne, on "Phonetic Spelling."

In May, at St. Michael's Girls' School, lesson by Mrs. Weston, on "The Death of Abel." Essay by Mr. Baker, on "The Duties of Parents and Society towards the Rising Generation."

In June, at the Trade School, lesson by Mr. Dainteth, on "The Chemistry of Bread-baking." Essay by Mr. Courtney, on "History, and how to teach it."

In July, at the Great Western Cotton Works' School, lesson by Mr. Green, on "Dew." Essay by Mr. Biggs, on "Absentees."

In August, at St. Mary Redcliffe's Girls' School, lesson by Miss Morgan, on "Cotton."

In September, at St. Mary Redcliffe's Infant School, lesson by Mrs. Jones, on "The Sheep." Essay by Mr. King, on "Cultivating the habit of Obedience in Children."

The average attendance at these meetings has been 19; and looking at the practical nature of the work accomplished at them, the result must have been advantageous to all who have taken part in them. With respect to the essays, it may be remarked that, considering they were voluntary and subject to discussion, their number has been good; and the writers of them have always manifested such taste and judgment as to elicit interesting and improving discussions on them. In conclusion, it is a matter for sincere thankfulness to Almighty God that we are again permitted to assemble at another annual meeting; and let it be our prayer that the Bristol Church of England Schoolmasters' and Schoolmistresses' Association may long exist to advance the objects for which it was originally established,—"The mutual improvement of its members, and the promotion of cordiality of feeling amongst them by friendly intercourse."

Mr. Serjent was elected chairman, and Messrs. Biggs and Wilson were respectively re-elected treasurer and secretary for the ensuing year.

UNITED ASSOCIATION OF SCHOOLMASTERS.

The Third Anniversary Meeting will be held on the 29th and 30th of next December, at the House of the Society of Arts, London.

The Inaugural Address will be delivered by the Rev. Dr. Booth, Treasurer of the Society of Arts.

The President will give a Lecture on the use of Philosophical Apparatus in Schools, with experimental illustrations.

Mr. George Kearley, Secretary to the Voluntary School Association, will deliver a Lecture on the subject of "The School in its Relation to After-life."

Members are hereby requested to inform any Teachers of their acquaintance who may be intending to join the Association, that all new subscriptions received during the remaining part of the present year, while they will immediately constitute the subscribers members, will be counted as subscriptions for the year 1857.

The Committee have the satisfaction of being able to state that, when the subscriptions of the present members shall have been paid up, the Association will be entirely free from debt.

Mr. A. J. Braid, Master of the Upper Juvenile School, Parker Street, Little Queen Street, Lincoln's Inn Fields, has been appointed to the office of Minuting Secretary, *vice* Mr. W. H. Smith, resigned.

Mr. W. Hammond, Master of the St. Thomas Charterhouse Upper School, has been appointed to the office of Librarian, *vice* Mr. J. J. Hay, resigned.

JAMES TILLEARD, *Corresponding Secretary.*

AT the usual monthly meeting of the Dorking Association on Saturday, November 1st, a paper was read by Mr. Howard of Mickleham, on the expediency of establishing a Teachers' Benevolent Institution. The paper, which was listened to with much attention, showed the necessity existing for such an institution; the insufficiency of Benefit Societies, Deferred Annuities, and Life Assurance, to meet the cases contemplated; the duty of teachers to provide for such necessity; the nature of the institution required, viz. a fund for the temporary relief of teachers' families in time of sickness or other urgent necessity, the providing a home for aged and infirm teachers of both sexes; and the establishment and support of an asylum for their orphans, and offering some suggestions and calculations, showing how these objects might be accomplished. It was shown, that if the teachers of this country, in connection with the Church of England, would unite in this good work, the first of these objects might be easily accomplished by a penny weekly subscription; while if a proportion, equal to three-fifths of the whole body of teachers, would pay a monthly subscription of one shilling, the second object might be provided for in the space of three years; and the third, the orphan asylum, might also be accomplished by a perseverance in this course for a few years longer. The propriety of establishing a training college in connection with an orphan asylum, was strongly urged, it being deemed most appropriate that the orphan children of teachers should be trained to the same pursuits, and which would moreover entitle the institution to the patronage of the Government.

Resolutions in favour of this object were unanimously passed by the members present.

THOMAS SWINDELL, *Honorary Secretary.*

Ockley, Dorking.

Notices.

*** *Owing to the great amount of interesting local Intelligence this month, we are compelled to defer the paper on the Practical Teaching of Fractions, and others, till the January number, together with several Book Notices and Letters.*

Our Subscribers will observe that we have kept faith with them as to the increased size of this Volume.

REDUCED CHARGE FOR ADVERTISEMENTS.

Orders and Advertisements must be sent ONLY *to* MESSRS. GROOMBRIDGE, 5, *Paternoster Row; the latter, from strangers, must be accompanied by a remittance, according to the following scale:—If under* 40 *words,* 3*s.* 6*d.; for every additional ten words,* 6*d.; a whole page,* £2. 2*s.; a half-page, or one column,* £1. 5*s. Ten per cent. discount on all Advertisements inserted more than twice.*

The JOURNAL *will be sent, free of postage, for one year, on receipt of* 6*s.* 6*d. in advance.*

INDEX.

A B C, Chapter on, 180, 280
A or An Usage Act, 282
American Schools, Reminiscences of, 390
Anglo-Saxon Language, Study of, 10, 112
Arithmetic, Mental, 92, 132, 159, 289
Arithmetical Notes and Queries, 21
——— Puzzles, Solution of, 5

BEST Way of Teaching the Catechism, 67
Boarding Schools, Sunday Readings for, 321
Brighton and Sussex Church Schoolmasters' Association, 426

CATECHISM, Best Way of Teaching, 67
Chaplaincies to Workhouses and Private Pupils, 86
Chapter on A B C, 180, 280
Church Schoolmasters' Association, 426
Citizen, Education of, 71
Civil Service Examination Papers, 61, 99
Conference at Bristol, 401
Controversy on the Moon, 333

DAVIS, Rev. C. H., versus F. F. W., 214
Decimal Weights and Measures, New System, 1
Disciplina Rediviva, 34, 123, 169, 205, 249
Discoveries of Regnault as to Heat of Steam, 32
Document, 200
Does the Moon Rotate on its own Axis? 216
Dr. Lardner on Lunar Motion, 333
Drawing, 399, 424, 452

ECONOMY, Political, 138
Educational Mistakes, 467
Education of the Citizen, 71, 236
——— of Females, 352, 395, 433
———, Self, 78
——— of an ordinary Description made National, 116
Elementary Schools, Singing Taught in, 188, 227, 297, 358, 405, 445, 484
Examination Papers for Civil Service, 61, 99
Explanation of Discoveries of the Latent Heat of Steam, 32

FEMALE Education, 352, 395, 433
Fondness for Teaching, 393
Fractions, Mode of Teaching, 373, 4
455
Furtherance of Education, Plan for, 4

GOVERNMENT of Pupil-teachers, 309

HINTS for Mechanics' Institutes, 179
——— on Scripture Lessons, 28, 59,
277, 344, 386
How to make ordinary Education
tional, 116

INDUSTRIAL Schools, 8
Inferiority of Education in England, 1
Intelligence, 51, 97, 155, 202, 247,
369, 414, 442, 475, 496

LARDNER, Dr., on Lunar Motion, 333
Literary Style and Composition, 87, 1
Local Words, 16, 63, 104, 178, 233,
334
Lunar Motion, 253, 333, 340
——————— Defined, 337
——— Rotation, 324

MARTIAL, 17
Mathematicians, 435
Mechanics' Institutes, 179
Mental Arithmetic, 92, 132, 159, 289
Method of Teaching Fractions, 373, 4
455
——————— Singing in Element
Schools, 188, 227, 297, 358, 405, 4
484
Minutes of Council, 96
Moon Controversy, 333
——— Rotation on its own Axis, 216,
Motion of the Moon, 253, 343, 427
Music as a Branch of National Educati
53

NEW BOOKS, Notes of, 41, 139, 194, 2
284, 336, 365, 410, 440, 471, 494
——— System of Decimal Weights
Measures, 1
Nomenclature of Topography, 24
Notes and Queries on Arithmetic, 21

Notes of New Books, 41, 139, 194, 244, 281, 336, 365, 410, 440, 471, 494
Notices, 52, 98, 158, 204, 248, 288, 372, 414, 444, 478, 510

Obituary, 248
Overschooling, System of, 438

Political Economy, 138
Postscript, 154
Practical Hints for Scripture Lessons, 28, 59, 165, 277
——— Plan for Furthering Education, 479
Private Pupils and Chaplains to Workhouses, 86
Proofs of the Moon's Rotation, 275
Punctuation, 69, 167, 334, 387
Pupil-teachers, Government of, 309

Queries and Notes on Arithmetic, 21
Questions and Answers, 50, 153, 285, 495

Rational Mode of Teaching Fractions, 373, 415, 455
Reading Books, 29, 84
———, Teaching of, 105
——— for Sundays, 321, 383, 462
Reasons for Inferiority of Education in England, 185
Reformatory Conference at Bristol, 401
Regnault's Discoveries relative to Latent Heat of Steam, 32
Reminiscences of American Schools, 390
Rotary Motion of Wyld's Great Globe, 493
Rotation of the Moon on its Axis, 216, 275
Rule of Three, 346

School-teachers and Committee of Council, 177
Schools of Industry, 8
Scripture Lessons, Hints on, 28, 59, 165, 277, 344, 386
Self-education, 78
Simultaneous Teaching, 76
Singing Taught in Elementary Schools, 188, 227, 297, 358, 405, 445, 484
Sketch of the Reformatory Conference at Bristol, 401
Solution of Arithmetical Puzzles, 5
Study of Local Words, 16, 63, 104, 178, 233, 304, 334
——— the Anglo-Saxon Language, 10, 112
Style and Punctuation, 387
Sunday Readings for Boarding Schools, 321, 383, 462
System, new, of Decimal Weights and Measures, 1
——— of Overschooling, 438

Teaching, on Simultaneous Method, 76
——— Reading, 105
Topographical Nomenclature, 24

Usage Act of A or An, 282

Voluntary System, 315

Workhouse Chaplains and Private P pils, 86
Wyld's Great Globe, Rotary Motion of, 493

COX (BROS.) AND WYMAN, PRINTERS, GREAT QUEEN STREET.

THE NEW YORK PUBLIC LIBRARY
REFERENCE DEPARTMENT

This book is under no circumstances to be taken from the Building

Form 410